JULY
1948

PESTS

and their CONTROL

Salt Marsh mosquito, Aedes sollicitans, ignores hair while sucking blood from man's arm (photo, T. Mulhern)

MAGAZINE OF THE PEST CONTROL INDUSTRY

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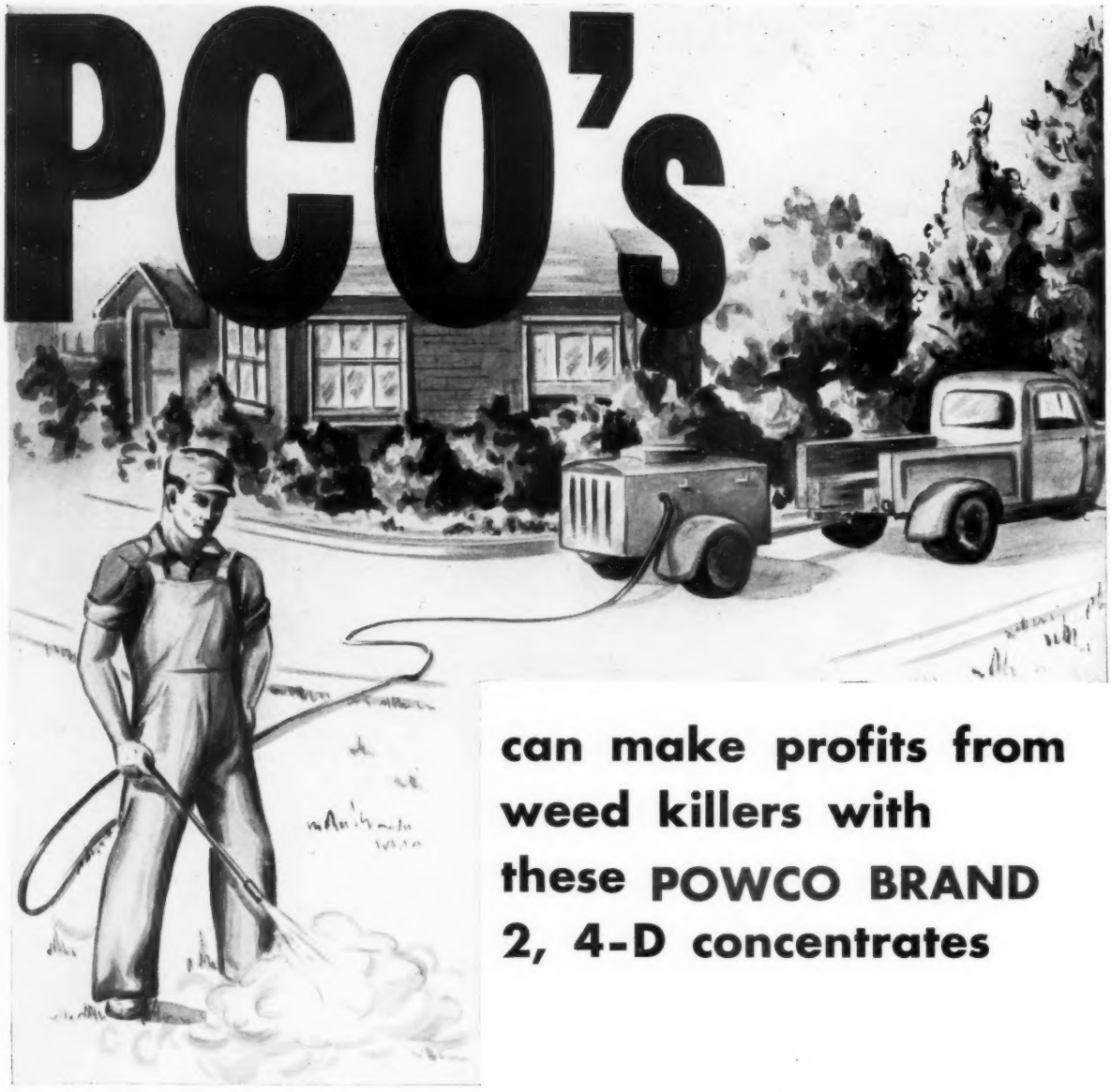

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PESTS and their CONTROL

JAMES A. NELSON
Editor

Cooperating with

NATIONAL PEST CONTROL ASSOCIATION

Contributed articles in this publication do not necessarily reflect the opinions of the editors. The editors invite discussions, comments and all types of material pertaining to pest control and pests from those interested in the advancement of the field.

All contributions must be in our hands by the 15th of the month preceding issue for which they are intended.

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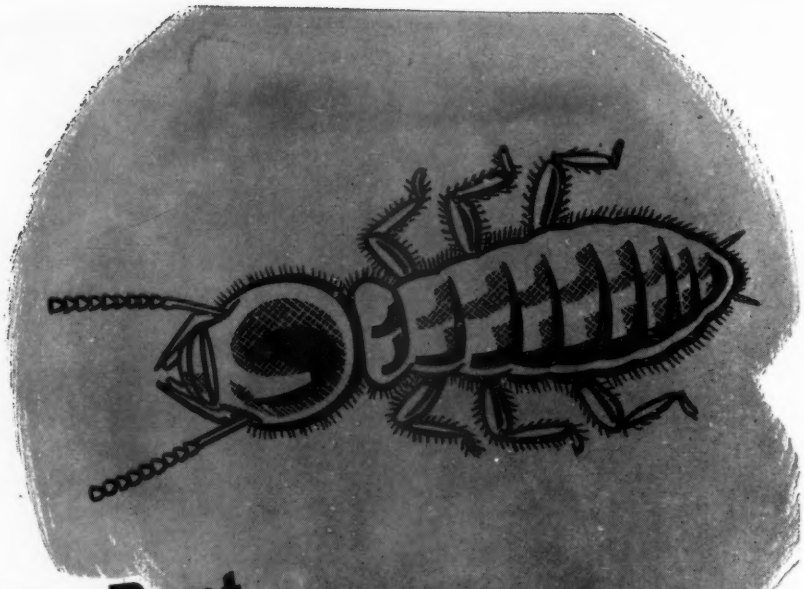

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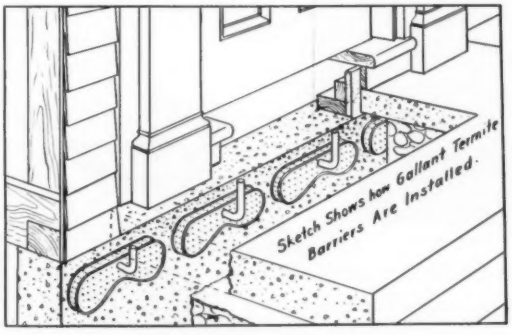

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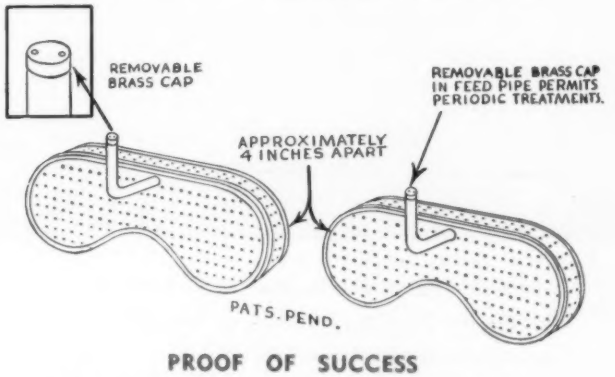
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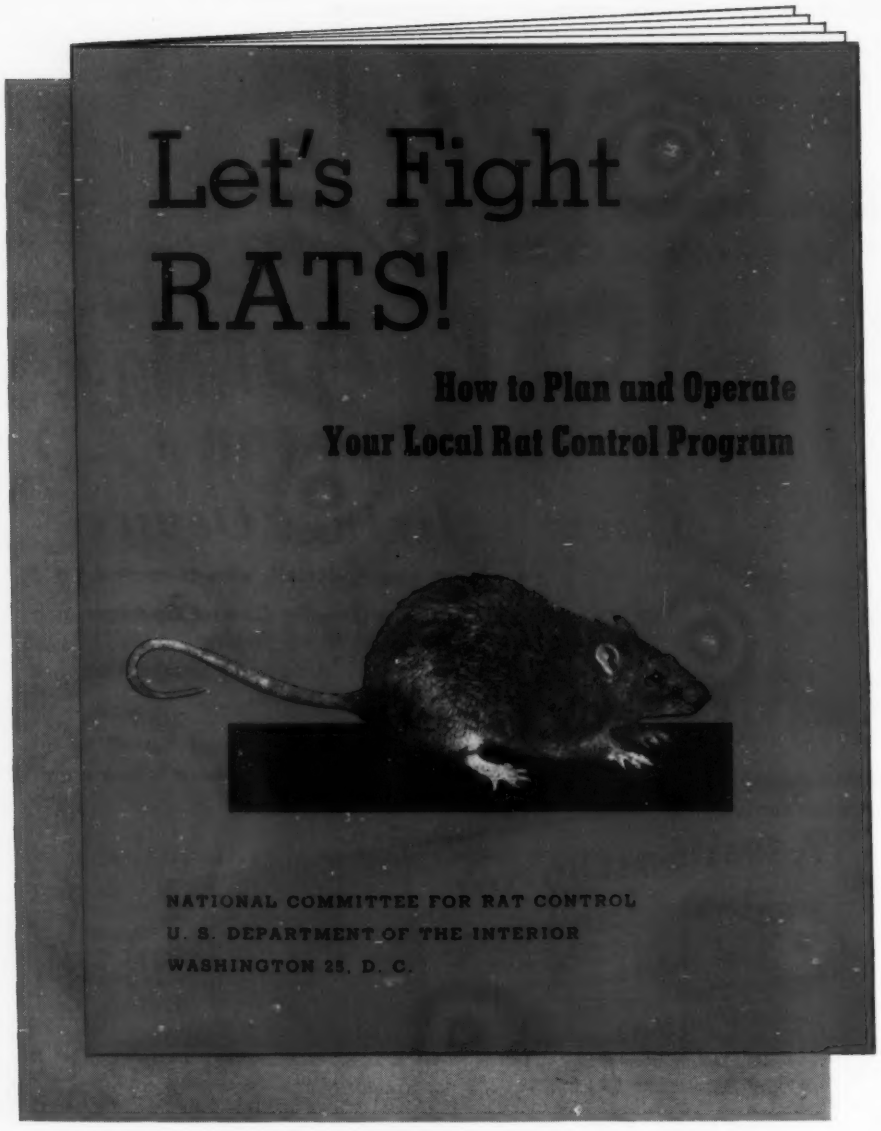
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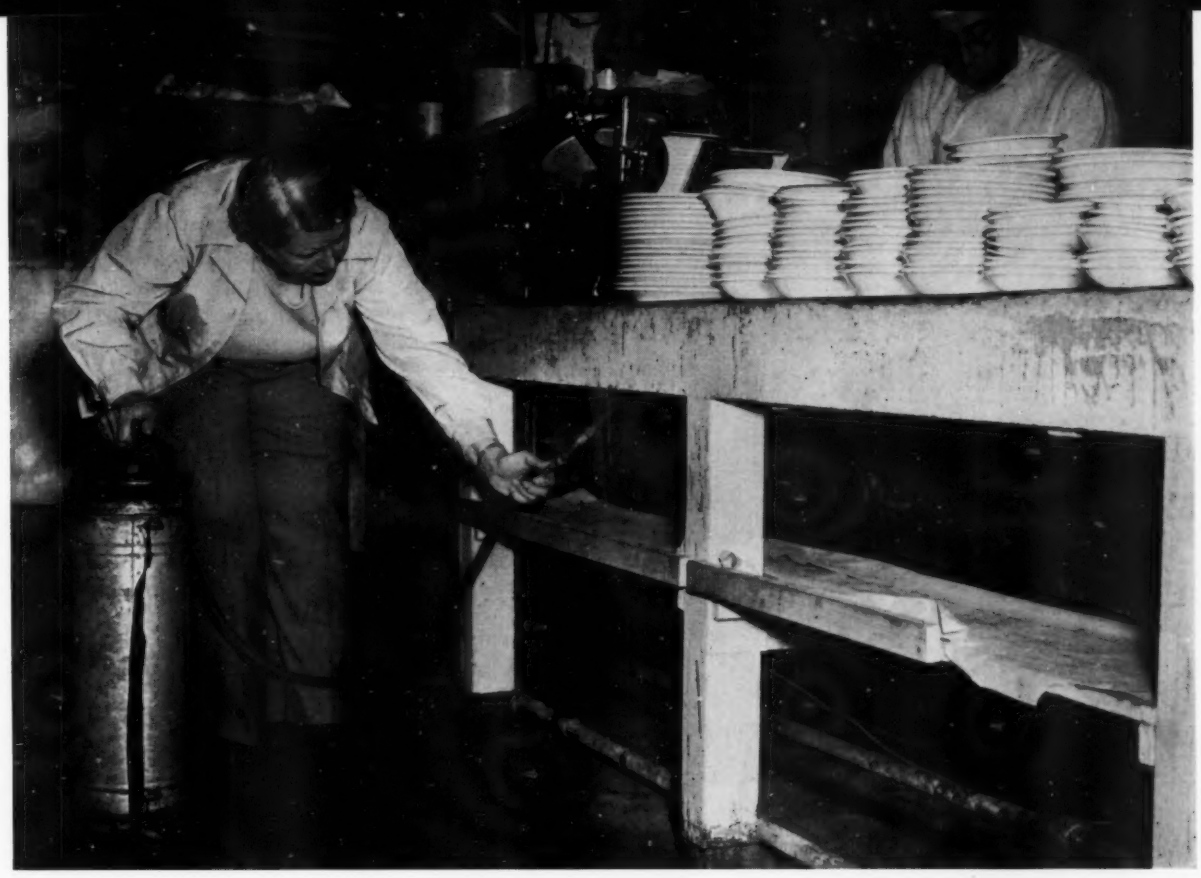


Pyrenones in Roach Control Practice*

By Eileen Lindenberg Donohoe

President, Donohoe Associates, Inc., Clinton, New Jersey

THE POTENTIAL toxicity of many of the present day insecticides to man and other animals has led us to believe that the future might hold the establishment of specified deposits that will be tolerated by law enforcement agencies. Our concern is not with our ability to engineer applications within the range of any tolerance which might be imposed, but with the fact that residues applied by ourselves could represent additions to those made by others in the field, in storage or in transporting vehicles.

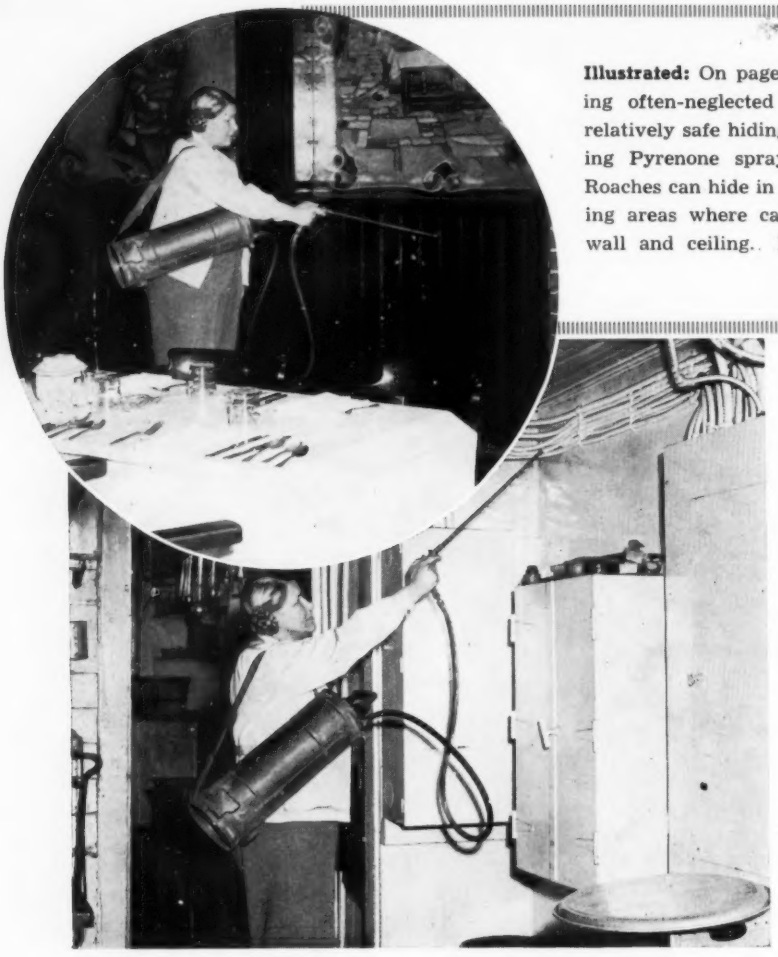
Over three years ago we began experimental work with piperonyl cyclonene and piperonyl butoxide, each in combination with pyrethrins. Some recent developments which emphasize the desirability of using safe insecticides have caused us to change our original intentions on the use of the data we have accumulated, and to make it available for the abatement of insects that destroy or contaminate foodstuffs. Some of our preliminary data on the protection of grain in storage, also for the control of certain ectoparasites of cattle, have been published elsewhere. This work has consisted of making field evaluations of some of the insecticidal chemicals developed in the Entomological Research Laboratory of U. S. Industrial Chemicals, Inc. It has been carried on with the advise of and in cooperation with Dr. W. E. Dove and his Staff.

To those who feel that the pre-

> *"i was talking with an insect the other day about the hard times that cockroaches have to get a living every man's hand is against them and occasionally his foot"*
>
> *Don Marquis: statesmanship*

* *Registered trademark of U. S. Industrial Chemicals, Inc.*

** *From "The Best of Don Marquis," Doubleday & Company, Inc.*



Illustrated: On page 9 Mrs. Donohoe demonstrates treating often-neglected undersides of equipment that are relatively safe hiding places for insects. In circle. Applying Pyrenone spray to wains-coating in dining area. Roaches can hide in open joints of lumber. Below. Treating areas where cable, conduit, or pipe are secured to wall and ceiling. Excellent hiding places for roaches.

sent food shortages are temporary, a reading of Fairfield Osborn's article, "Crowded Off the Earth," in the *Atlantic Monthly*, March, 1948, is recommended. Unless miracles happen, this condition may be a long term trend, accentuated from time to time by drought, storm, pestilence, and other exigencies created by natural forces.

Basically, the control of roaches with the Pyrenones presents no additional problems over those encountered with the use of other insecticides. In practice, it is generally recognized that good control results from the establishment of proper relationships between the physical, chemical, and biological factors found on the jobs. Most often, the over-all efficiency depends upon the ability of the person laying out the work to be done. The experienced operator recognizes that insecticidal efficiency does not come from the use of any general formulation of an insecticide or entirely from the percentage of active ingredients contained in a formula. He should recognize that in space treatment there is a direct relationship to the number of milligrams of killing agent introduced per 1000 cubic feet of space. Also, in surface treatments, the efficiency of the insecticide is in direct relationship to the number of milligrams here of active ingredient present on a square foot of surface as well as upon the number of important square feet treated in the infested premises. In the operator's practice, there are places for the use of dusts, wettable powders, emulsions, and oil solutions. The use of them for maximum efficiency is the business of Pest Control; and we might add that the know-how-and-where comes only from experience.

Some results obtained against different species of cockroaches from the use of Pyrenone emulsions, dusts, and oil solutions are summarized. Some of these are based on experimental work, and others, upon commercial applications where customer satisfaction was the essential factor. For the most part, the work was done in northwestern New Jersey and environs; but we are advised that there are no apparent reasons why the results cannot be reproduced in most other localities.

1. Pyrenone spray and dust concentrates, in the dilutions stated, afforded protection against roach infestation (German, American, and Oriental) when applied to given areas within buildings that were generally infested; they produced effective clean-ups of the general infestation.

2. The quantity of active ingredients used in the different spray dilutions is expressed in milligrams per cubic centimeter of spray:

Spray	Piperonyl Butoxide mg/cc	Pyrethrins mg/cc
A	20	2.00
B	10	1.00
C	10	0.75
D	10	0.50

Spraying equipment consisted of tubular tank sprayers equipped with Spraying Systems Company 8001 or 8002 nozzles, depending upon the type of surface to be treated. The air pressures maintained in the sprayers were approximately 40 pounds per square inch.

The quantity of active ingre-

dients used in dusts is expressed in percentages by weight:

Dust	Piperonyl Cyclonene %	Pyrethrins %
A	1.250	0.20
B	1.000	0.16
C	0.625	0.10

Aplications of dusts were made with Dobbins No. 132 dusters.

3. All spray and dust dilutions gave an immediate flush, a quick knockdown, and a fast kill when applied to the hiding places of roaches. With the possible exception of Dust C, it is doubtful if anyone but a trained observer could distinguish the relative efficiencies of the different treatments.

4. Differences in residual values were marked.

Theoretically, one can produce equal residues per square foot of surface with any dilution shown. In the case of Dust C, it would be necessary to pile it high enough, and in the case of Spray D, it would be necessary to reduce the spraying rate and/or increase the nozzle flow rate on a surface that would hold the spray. Lower concentrations of the active ingredients always mean a proportional increase in the total quantity of material to be applied to a surface.

In this connection, the reader is referred to an article by P. C. Piquett, R. H. Nelson, and E. R. McGovran, in PESTS, February, 1948, page 45. Their method made use of fuller's earth impregnated with an acetone solution of pyrethrum and piperonyl cyclonene. A mortality of 98% was obtained with 30 milligrams of dust containing 1.5% piperonyl cyclonene and 0.3% pyrethrins against lots of 15 female American roaches or 2 milligrams per roach. Using the same testing methods, Dust A produced closely comparable results when used at the rate of 5 milligrams per roach.

Residual values of any insecticide are limited by the housekeeping practices prevailing in the treated areas. Scrubbing produces as much of a problem as excess grease and dust which are often permitted to accumulate and cover the treated surface. When is was possible to correlate frequency of application and adjusted dosage with sanitary procedures, some amazingly low-cost control was obtained.

In a house of mid-Victorian construction, converted into a club for men, a moderately heavy German roach infestation seemed to be localized in the bar room and toilet rooms in the basement and in the kitchen and toilet rooms on the ground floor. In the kitchen, dishes and food were removed from shelving which was treated with Spray A to effect an approximate residue of 100 mgs. of piperonyl butoxide and 10 mgs. of pyrethrins per square foot of surface. Only one spray application was made to these storage cupboards. The rest of the area received at monthly intervals five treatments of Spray B to effect an approximate residue of 38 mgs. of piperonyl butoxide and 3.8 mgs. of pyrethrins per square foot of surface in each spraying. This area embraced 1742 square feet, and for five applications the total surface sprayed was 8710 square feet. The total amount of spray used was 47½ quarts; the total time required on all of the spraying operations was 8 hours. Each month the premises are carefully inspected by ourselves. No living roaches have been observed by us, by club members, or by any club employees anywhere in the building to date, which is three months after completion of the spraying operations.

In another and a different series of tests conducted on an experimental basis, a correlation between sanitation procedures and residual applications was again noted. These tests were made in kitchens of five large buildings of varied types of construction, none less than 25 years old, known to be heavily infested with German roaches. In each instance, the spraying procedure was the same. Complete coverage was obtained on all of the walls, on the undersides of all equipment, tables, chairs, also on the top, bottom, and back surfaces of all shelving. Visible cracks and crevices, also open joints of lumber, were given special attention by directing the edge of the fan-shaped spray into these openings. The following table gives the rate of application for the five areas, and the time required for making the treatments.

Area No.	Area Treated (sq. ft.)	Amount of spray qts.	Active Ingredients Piperonyl butoxide mg/cc	Pyrethrins mg/cc	Time to mix and apply (minutes)
1	1623	15	10	1.00	40
2	1253	11	10	1.00	40
3	1373	12	10	0.50	40
4	1586	15	10	0.75	45
5	4590	18	10	1.00	45

Areas 1, 2, 3, and 4 continued on regular cleaning schedules. Area 5 suspended wall washing and cleaning of shelving until notified to proceed. Semi-weekly inspections were made with supervisors of the owners; the inspections included the questioning of employees. Dead roaches were cleaned up after the application dried, and on practically every inspection dead roaches were swept up along cracks where the treated area joined untreated areas. This, in our opinion, indicated that the insecticide was not acting as a repellent.

Area 1 was treated on November 5, 1947. During the week of January 5, 2 months after application, a general housecleaning took place. The walls, floor, shelving, and equipment were thoroughly scrubbed and washed down with a strong soap and oakite solution. Following this, roaches began to move in from other portions of the building, and by January 16 a reinfestation could be said to exist. In Area 2 the conditions and results were for all practical purposes similar to those in Area 1. Area 3 was treated on November 14, 1947. On December 8, 1947, painting began which in our opinion would make the validity of any observations questionable. In the butler's pantry where there was an old sink surrounded by wood drain boards and a wood pipe covering, several roaches were observed in cracks in this construction 25 days after application of the insecticide. Painting had not progressed to this point. At other points as yet

(Continued on page 48)

COMPARE DDT with NEWER SYNTHETIC INSECTICIDES[1]

by

WILLIAM M. UPHOLT, Biologist, - S. W. SIMMONS, Senior Scientist

U. S. Public Health Service

DURING 1944 and 1945 DDT held sway as uncontested "King of the Insecticides." It is true that it was already apparent that DDT had its weaknesses, particularly in the agricultural field where there were numerous insects highly resistant to DDT. In the case of household pests, few seemed highly resistant to DDT but some, notably cockroaches, were very slow in succumbing and required very careful application of the insecticide for best results.

It was inevitable that the discovery of an insecticide such as DDT should initiate an avalanche of roughly similar materials, each claimed to be far superior to the previous. Within the span of two short years the avalanche has gained momentum with benzene hexachloride, chlordane, DDD, and a chlorinated camphene already on the market and with rumors of more to come in the near future.

Manufacturers of some of these newer materials, in more or less guarded language, claim their products to be the successor to DDT. Some of the more spectacular advertisers actually make claims of "ten times more toxic than DDT" or similar figures.

In general the direct consumer or other purchaser should be quite critical of such claims. Exactly what does such a statement mean? In dealing with residual type insecticides, toxicity may be expressed in either of two ways; namely, the dosage required to produce a given mortality within a specific period of time or the length of exposure time required to produce a given mortality using a specific dosage. In the first case, the time of exposure is considered as constant and the dosage is variable, while in the second instance the exposure time is varied and the dosage is constant. Thus, in making comparisons, the statement "ten times more toxic" may mean that one-tenth the dosage is all that is required to produce a given mortality within a specific length of time, or assuming a constant dosage, that only one-tenth the time is required to produce a given mortality. Actually a material may require only one-tenth the dosage to produce fifty per cent mortality but one-half the dosage if the ninety-five per cent point is under consideration. The same applies to the time-mortality relationship. In both cases the factor requires inversion before it can be interpreted. Thus, "ten times as toxic" means "one-tenth the dosage (or exposure time) is required." To further complicate the matter, "toxicity" is not always measured by mortality. In some tests with space sprays, "knock-down" may be the response instead of mortality so that a material may require one-tenth the dosage to produce a given knock-down and thus be referred to as ten times as toxic, whereas it may actually require twice as much to produce a given mortality and thus also be only half as toxic if measured by a different response. Even the waiting period after exposure before determining mortality may have an important effect, for it is not uncommon for one material to be most toxic if mortality at twelve hours is the criterion and a different material to be most toxic if mortality at seventy-two hours is the criterion.

From the foregoing, it can be seen that merely claiming that a material is "ten times more toxic than DDT" without giving data as to the basis on which the comparison is made, gives very little information upon which to determine the suitability of a product as a substitute for DDT.

Comparative Costs

To be strictly practical about it the purchaser is not interested in how the material corresponds to other substances in toxicity, for toxicity is an academic term that means nothing quantitatively until accurately defined in terms of what a material will do in the field. What the consumer wants to know is "how much will it cost me to obtain satisfactory control for one season, using this material?" It is true that toxicity is an important factor in answering this question, but it may be less important than certain other factors under practical conditions.

As a simplified example let us assume that material A costs fifty cents a pound and one pound is sufficient for satisfactory control over a wall area of 3000 square feet. Material B requires only one-half pound to adequately treat 3000 square feet, but it costs two dollars per pound. Material B could be said to be "twice as toxic" as material A, but it still costs twice as much for a "functional unit."[2]

1—Contribution from Communicable Disease Center, Technical Development Division (Savannah, Ga.)

2—A "functional unit" may be defined as the amount required to produce a given result as the amount of an insecticide required to give satisfactory control over a unit area.

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Actually the situation is much more complicated. In the example given, it is implied that to use material B costs twice as much as material A. However, it is only the cost of materials that is twice as much; labor would presumably be the same for both materials and in most cases labor costs are much higher than material costs, so that the net result might be that the cost of using material B would be only five or ten per cent higher than if material A were used.

Another factor to consider is the frequency with which the premises must be retreated. From the standpoint of the householder or of the PCO who contracts on a seasonal basis, the frequency of retreatment is apt to overshadow all other cost factors. If material B requires only one treatment per year and material A requires two, the seasonal net cost of A may be as much as eighty per cent higher than B in spite of lower cost per treatment.

There are still other factors that cannot be ignored. The use of one material may entail greater labor cost than the use of another; one material may be more dangerous than another, thus increasing the danger of damage suits; also consumer satisfaction never can be ignored and the material which most pleases the customer may be worth a higher "functional unit" cost.

It is only when all of these factors are taken into consideration that the purchaser is in a position to select one insecticide in preference to another. Since the relative importance of the foregoing factors vary from situation to situation, it is essential for each purchaser to weigh all of them as applied to his own problem.

Therefore, there can be no single general answer to the question "which is the best insecticide?" or to the question "is this material better than DDT?" All that we can do is to make specific statements as to how various insecticides compare in regard to certain known factors at the present time, recognizing that all such statements are subject to change as prices change, as formulations improve, and as geographical and seasonal considerations affect problems.

Bearing in mind these cautions against generalizations, it is possible to make a few comments about the present place of DDT in the insecticide picture which may serve as a guide to the PCO in making a wise choice of materials. In view of the fact that the U. S. Public Health Service is generally concerned only with insects of public health importance, these comments will be restricted to the control of mosquitoes (specifically the malaria mosquito, though it is believed that the name applies to other species of mosquitoes infesting houses) and to house flies.

Flies, Mosquitoes and DDT

We have no statistics on the relative frequencies with which single applications of insecticides are used to control flying insects, or for seasonal control, but we believe it to be in the interest of good business to approach the problem from the standpoint of seasonal control, for that is of most common interest to the customer. With this in mind the duration of residual effect becomes important for it determines the frequency with which application must be made. We may then summarize the status of DDT as a residual house spray for the control of flies and mosquitoes as follows:

1. *Quick knock-down* — of importance from the standpoint of customer satisfaction. DDT is notoriously slow in its action. It cannot hope to compare with the old standby space sprays using pyrethrum and certain synthetics. This factor may be so important that it may cause considerable dissatisfaction if DDT is applied in an unscreened house or business establishment located in an area of heavy breeding where flies may enter faster than they are knocked down. However, these insecticides applied as space sprays for quick knock-down produce little residual action so that it may be a choice between slow action or repeated treatments if a long residual is considered of prime importance. There is a possibility that some of the newer synthetic synergists for pyrethrins may produce a faster knock-down and still have appreciable residual action, but this factor has not yet been proved for flies and mosquitoes. At present the combination of agents with DDT to obtain both quick knock-down and long residual is not practical because quick knock-down agents must be applied as space sprays and DDT applied in this manner is not efficient as a residual. If the knock-down agents were applied to the wall, it is conceivable that it might prevent the insect from staying on the wall long enough to obtain a lethal dose of DDT. This entire subject needs much more investigation.

2. *Fatality of knock-down* — Everyone knows that flies that are "knocked down" do not always die. Recently it has been suggested that some flies and mosquitoes may show signs of being irritated by DDT and still survive. In general, however, it seems safe to assume that with DDT, essentially all mosquitoes and flies that are actually knocked down will not recover. None of the newer synthetics have been shown to surpass DDT in this regard.

3. *Dosage required for satisfactory initial kill* — This factor depends upon the degree of control considered satisfactory. Actually this factor can be ignored if long-lasting residual action is desired, for in all cases dosages which give residual toxicity over an appreciable length of time will be more than adequate to produce satisfactory initial control.

4. *Length of residual action* — This is possibly the most important single factor for, as previously explained, the number of retreatments required during a season is apt to be the controlling factor in cost of application. The actual length of time during which a residual treatment remains effective in giving satisfactory control of flies and mosquitoes will depend upon a large number of conditions that cannot be discussed here. Suffice it to say that under carefully controlled conditions DDT has remained effective appreciably longer than any other residual insecticide so far tested. This single factor more than anything else weights the evidence in favor of DDT for the control of flies

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and mosquitoes by residual house spraying.

5. *Cost of material* — The cost of the material must be weighed against other cost factors, especially that of labor and frequency of application. During the 1947 season the cost of DDT was far below that of most of the newer popular insecticides and no more expensive than for any other material being recommended for large scale residual spraying.

6. *Formulations available* — No material can be used successfully unless it can be incorporated into a formulation that can be cheaply, safely, and satisfactorily applied to a wide variety of surfaces. There is still room for a great deal of improvement in DDT formulations. Present water-wettable powders leave a visible residue that is objectionable in the better appointed homes. Solutions of DDT in deodorized kerosene or other petroleum solvents are considered best in some situations, but the cost is apt to be somewhat more than that of an emulsion, particularly when transportation is a problem. Emulsions in water of xylene or other aromatic hydrocarbons used as the DDT solvent are now widely used. The emulsification of these materials, however, presents many problems and there are legitimate objections such as odor, staining, or explosion hazard to the use of all solvents for DDT suggested so far.

On the other hand few of the newer synthetics now on the market have simpler formulation problems.

7. *Miscellaneous factors* — There are numerous other factors of less importance than those just mentioned which may be controlling in otherwise balanced situations. It is expected that these will be evaluated more accurately in the future. At the present time there is considerable objection to the persistent odors left by benzene hexachloride and some formulations of chlordane. DDT seems to be free of this objection so long as the solvent is chosen with care. Also of importance is the variety of insects that can be controlled by a single application. It is widely claimed that chlordane gives much more satisfactory control of cockroaches than does DDT, but it has also been shown that DDT is capable of controlling cockroaches satisfactorily over a long period of time if it is properly applied. There is insufficient evidence upon which to adequately evaluate the variety of insects against which each material is effective, but it seems likely at present that DDT is effective against as wide a variety of household insects as any single insecticide on the market today.

Toxicity to warm-blooded animals including man and domestic pets is a factor that may be all-important under some conditions, but unfortunately it cannot be adequately evaluated at the present time. Too many new insecticides are being marketed without adequate information of their toxicity to man and animals. This is a serious problem well worth the fullest consideration of all concerned. Some of the newer insecticides such as the pyrophosphates are so toxic to warm-blooded animals that they cannot be given serious consideration as residual sprays regardless of other factors. About all that can be said at present is that neither DDT nor its competitors such as DDD, chlordane, benzene hexachloride, or chlorinated camphene, have been proved to be dangerously toxic in operational use to mammals so far if used according to recommendations. This does not mean, however, that they are all necessarily safe.

In conclusion it must be stressed that the PCO must consider a number of factors in selecting an insecticide for residual spraying. Any one of these factors may be important enough to throw out an otherwise promising material. The importance of the various factors as well as the evaluation of any particular material in relation to the various factors, are subject to constant change due to methods of manufacture, improvements in formulations, and the relative importance and abundance of the pests to be controlled. Therefore any selection of a material should be subject to change as those and other considerations change. At the present DDT has not been displaced as a residual house spray for the control of house flies and mosquitoes, but in the future anything can happen.

PARATHION
Not Recommended

By
DR. E. H. GLASS
Entomologist, Insecticide Dept.
American Cyanamid Co.
New York, N. Y.

EDITOR'S NOTE: We asked Dr. Glass to prepare an article on parathion for this special issue of PESTS featuring the newer insecticides knowing that this chemical is not being recommended by his company or any other responsible people for use in houses, warehouses, barns or other establishments for pest control. The NPCA does not recommend its use. Parathion is quite toxic to warmblooded animals as well as insects. It may be absorbed through the skin and in high concentrations it may be hazardous in the vapor phase. Parathion is slowly volatile and it is not known what concentrations might accummulate or build-up in buildings treated with it. Dr. Glass did, however, send us the following statement:

"Parathion is the common name for O, O-diethyl O-p-nitrophenyl thiophosphate which has been shown to have outstanding toxicity to a wide range of insect pests. The compound is a high-boiling, brown liquid with a characteristic odor.

"At this time parathion is not recommended by the manufacturer for use within buildings because of its potential hazards to people working and living within treated premises. Also, it is unlikely that parathion can be used in many situations because of its odor. Even limited use in this phase of insect control cannot be made until additional data are obtained about such factors as toxicity and persistence of residues.

"Parathion is suitable for the control of certain pests on some agricultural crops."

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CHLORDANE EMULSIONS in STRUCTURAL PEST CONTROL

By LEON M. PRINCE, JR.
Emulsion Chemist
Pest Control Equipment Company

INSECTICIDE powders and space spraying, for roaches, and ants, are rapidly disappearing from the professional Pest Control Operator's methods. Instead, surface applications with residual insecticides, notably Chlordane, seems to be the latest and best procedure.

In deciding whether to use oil or water as the vehicle for these residues, we find that water wins, hands down, when the score is added. Some winning points for water are: no fire hazard (which means stoves, boiler rooms etc., can be treated), faster drying time, less slippery, little or no damage to asphalt tile floors or rubber backed materials, no need to carry the vehicle from job to job. This last point is like a dream come true. Many a P. C. O. has been waiting a long time for the day when he could get out of carrying around the gallons of liquid necessary for a day's work. Today he can put, say a quart or less of concentrate in his kit, and make up his finished insecticide, as needed, at the nearest water tap.

The man who wants to make up his own chlordane concentrate will find that there is more than a little "knowhow" to it; especially if he wants to come up with an emulsion that will be completely stable, have good wetting properties, and will leave residues that are not readily washed away. The man who wants to buy a concentrate that can be mixed with water, has his choice of several that are on the market today. Although the whole subject of emulsions is very complex, for the purpose of clarity here, we shall consider these chlordane concentrates as forming three distinct groups. For want of better names we shall call them "water miscible oil," "Solubilized Chlordane" and "Colloidal Emulsion." They differ from each other in stability, composition and, when mixed with water, appearance.

Their stability is measured by the time required for the appearance of the first signs of sedimentation, creaming, gelling or stratification.

Water Miscible Oil

"Water Miscible Oil" generally consists of Chlordane dissolved in oil (such as kerosene) plus emulsifying agents. These when mixed with water, vary in stability from a few minutes to a few days, rarely longer, before manifesting their instability. They do, however, leave residues which, generally, are not easily removed by water washing. They can, therefore, be used around sinks, in bathrooms and laundries with lasting residual effect. The finished insecticide (2% Chlordane) is dead white or chalky in appearance.

Solubilized Chlordane

"Solubilized Chlordane" is also a water miscible oil, but differs from them in several respects. They are usually made by mixing 50% chlordane with 50% solubilizer. When mixed with enough water to make 2% chlordane, they form transparent solutions of permanent stability at normal temperatures. They are, however, not usually recommended for use in areas subject to water washing.

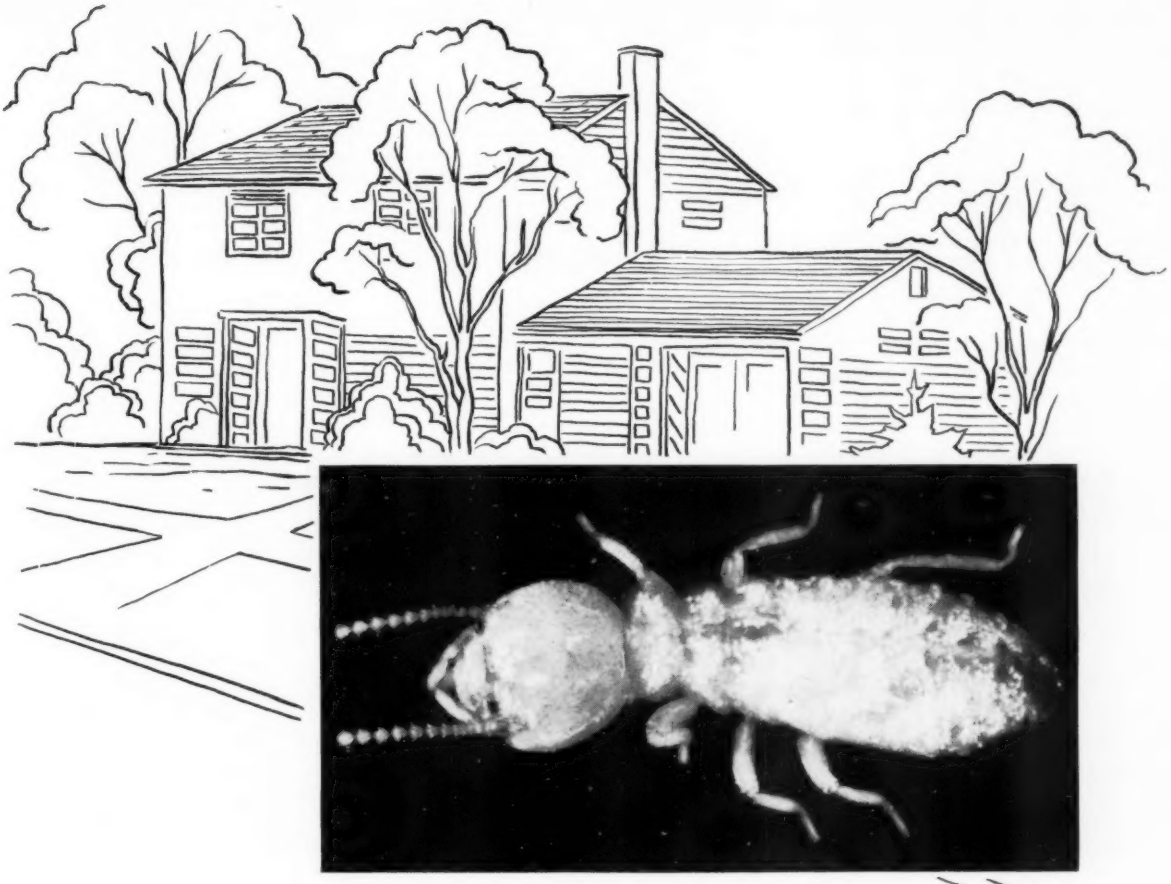
Colloidal Emulsion

A "Colloidal Emulsion" of chlordane differs from the others in that it is not an oil and does not contain a solubilizer. It is made by a process on which patents have ben filed. It contains chlordane, oil, emulsifying agents and water. It has the combined advantages of the other two types mentioned in that the residues are not readily removed by water washing and all dilutions with water are permanently stable. The finished insecticide (2% chlordane) has a skimmed milk appearance.

In addition, there is an optical phenomenon of true colloidal emulsions of this type, where all of the droplet particles have been reduced in size to ½ micron or less. If you put some in a bottle, hold it up to the light, rock the emulsion back and forth and look through the film left on the glass, it will have an orange-red color. The same film observed with the light behind you will have a light blue color. This phenomenon is called the Tyndall Effect. It readily distinguishes true colloidal emulsions from those with larger droplets.

Shortly after Chlordane first appeared, many progressive P. C. O.'s lost no time in attempting to use it with water as the carrier. Some gave up in disgust. Others

Mr. Prince has an AB and MA in Engineering and Chemistry from Columbia University and was with SAM Manhattan Project during the war.



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Chapman "Penta" Preservative, containing pentachlorophenol, has been thoroughly tested for resistance to termites and decay over a period of years. It is the same product now being used by lumber treating plants, telephone and electric companies as the best protection available for their wood products and poles.

You can buy Chapman "Penta" Preservative either ready-to-use or in convenient concentrate form. Write us immediately for all the facts on how "Penta" Preservative can add to your services.

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lived with the early difficulties, considering them a fair price, nonetheless, for the advantages gained. Most of these difficulties can now be explained and some of them overcome. Instability, for example, showed up very quickly when emulsions were left overnight in sprayer and found to be clogged the next morning. Sometimes the kill was not uniform, when agitation of the emulsion had been forgotten. Frequently, in such cases, the roaches would be getting a harmless water bath, or else a shot of nearly pure chlordane, depending on whether the chlordane floated to the top or settled to the bottom of the sprayer.

Then there were the emulsions that changed to "buttermilk." They weren't as bad though as the ones that turned into something approaching cheese. This gelling, however, is a mark of instability. The use of such emulsions, can, and should, be avoided. As to corrosion, we know that chlordane, like DDT and other chlorinated hydrocarbons, should be kept on the acid side when formulated. Water plus acid plus oxygen in the air will corrode some metals of which sprayers are made. This is especially true of iron or steel (not stainless steel).

Staining and odor are two problems that have always been with us, and to some extent, they still are. The question, "Does a water base spray stain?", must necessarily be answered by the question, "Stain what?". Compared with an oil base, the score seems to be about even, with perhaps, a slight edge in favor of a water base. When we consider the multitude of things in the home that get washed, that furniture and carpets get shampooed, that painted walls and even some wall papers can be washed with soap and water, it will be seen that the water base insecticide has much to commend it. Testing of small, obscure areas for staining, however, is still good practice.

Likewise, the question, "Does it stink?", has to be answered by, "To whom." Most people do not consider the odor of 2% refined grade chlordane objectionable. Some even like it. Certainly, water base insecticides in general, have less odor and for less time than those with oil.

In the past, the P.C.O. has had to adapt the outdoor materials and equipment to his indoor requirements. But today he does not have to be the step-child of the wider markets. His is a growing, organized profession. Equipment is being made for his special needs and so are insecticide formulations. The many recent scientific advances are available to him. It only remains for him to assimilate the knowledge, utilize the advances and thereby improve his profesional standing.

Canadian PCOs Set Up Safety Rules for 1080

THE CANADIAN Pest Control Operators Association has drawn up a set of safety rules for the use of sodium fluoroacetate (1080) which it is recommending to all Canadian PCOs.

At the time 1080 was first sold in the United States, the Canadian Pesticide Association prohibited the importation of that product into Canada and its use in pest control. Later, government attempts were made to release this compound under conditions likely to protect the public. Several conferences were held in Montreal and Ottawa and the decision has been made that the Canadian Department of Agriculture does not feel obligated to assume responsibility of supervising the use of the material and 1080 was released for sale in Canada.

First step in industry self-regulation without external pressure in this matter was demonstrated by the Canadian PCOA when it wrote the rules listed below. Regulations already adopted by New York city PCOs, in part, became a basis of what was finally written.

The NPCA is continuing with its study of rules and regulations in regard to 1080. Regulations now set forth by various pest control groups may be considered as an intermin step until the NPCA has taken further action. Following are the rules set down by the Canadian Association.

Safety Rules For The Use Of Sodium Fluoroacetate (1080)

1. Sodium Fluoroacetate should be handled and used **only** by those members of the PCO's staff who are well experienced in the use of poisons in general, and full aware of the dangers of this new material in particular.

2. Any PCO who intends to use Sodium Fluoroacetate in his rat control service work should appoint one of the most dependable men on his staff who will:

(a) at all times guard under lock and key, in his office or laboratory quantities of Sodium Fluoroacetate which are in stock;

(b) prepare himself, the water solutions meant to be used in the rat control work and keep said water solutions under lock and key until they are used;

(c) check up on the amounts of poisoned water taken out by the staff members, and on the amounts left over and taken back to the office or laboratory.

3. Use Sodium Fluoroacetate in water baits only. Never use any of it in food baits.

4. The poisoned water should be distinctly discolored; suitable colorants may be secured from Confectioners' supplies or Extracts dealers.

5. Sodium Fluoroacetate should nevered be carried to the job in powder or crystal form, but only in water solutions and in SAFETY containers.

6. Do not use milk or soft drink botles, or any other beverage type containers to store or transport poisoned water.

7. Containers used to set out the poisoned water should bear the word "POISON" together with a skull and cross bones. If "souffle" (paper) cups are used, they should be used only once and then burned.

8. The poisoned water should never be placed in locations where it could be accessible to irresponsible persons, children or pets.

9. Sodium Fluoroacetate water should not be set out above floor levels and special attention should be paid so that, in case of spillage, no poisoned water may come in contact with stored foods or objects which may later be handled by humans.

10. Whenever Sodium Fluoroacetate water is used on any premises, the containers should be set out at the close of the day's operations and they should be recovered again before the start of operations the day following. However, if such a procedure is not practical, the poisoned water containers may be left on the premises during normal operating hours providing the containers are placed within "bait boxes" or "bait stations" in such a way that they may not be moved, spilled or otherwise displaced.

11. Diligent effort should be made to recover rat carcasses on the morning the containers are picked up.

12. Keep a record of purchases of Sodium Fluoroacetate and also records of the jobs where this material has ben used, with the dates and quantities indicated as well.

13. The PCO and his staff should read carefully and occasionally reread the above recommendations as well as other available bulletins outlining precautionary measures with reference to Sodium Fluoroacetate.

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ODORID may be sprinkled dry on or near the source of the odor. It is equally effective when mixed with water and washed or sprayed on.

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ODORID can be used indoors or outdoors. From the moment of its application, odor gasses are drawn to its surface and destroyed. It is *odorless before using, odorless while in use, odorless after it has served its purpose!*
ODORID enables you to do a better PEST CONTROL JOB than ever before!

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skunks	**boat bilges**
	or any obnoxious odor

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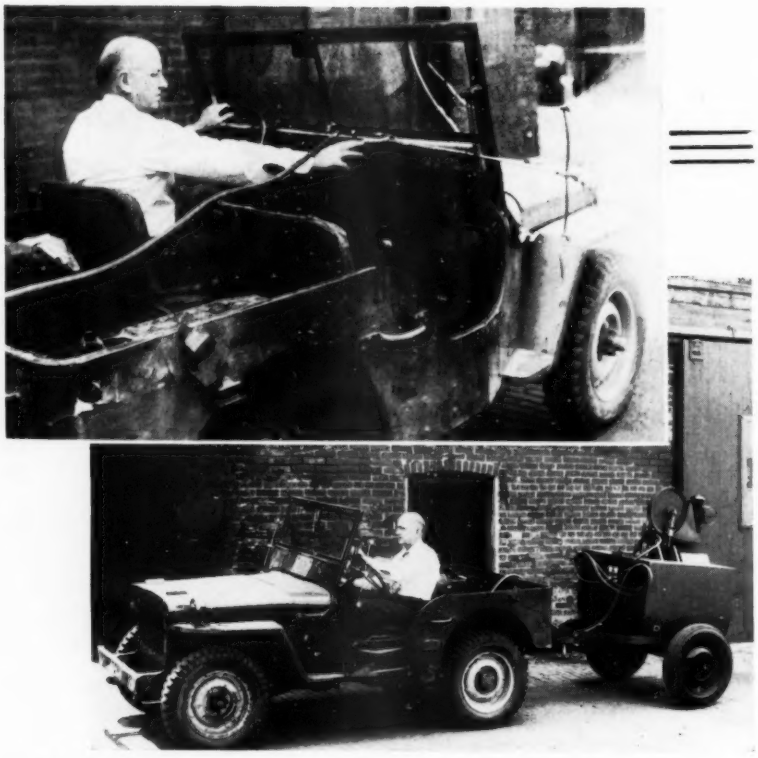
An Equipment Assembly for Spraying Alleys with DDT

By

George L. Hockenyos

President

National Pest Control Association



Mr. Hockenyos in his Jeep showing the Hudson 180 Peerless Trail-A-Spray with 150 gallon tank and 4-gal.-a-minute pump attachments for DDT application in alleys.

MANY P. C. O.s are being called upon for the first time to submit bids on city wide fly control work. This presents a problem of suitable equipment for the application of DDT to alleys with a minimum of time. Certain types of equipment ready made for this purpose are available but some P. C. O.s and especially those who may want to treat only a small town or village will have need for improvised equipment for this purpose.

The two illustrations show such an improvisation. The sprayer is a Hudson 4180 Peerless Trail-A-Spray with 150 gallon tank and 4-gallon-a-minute pump. A skid type sprayer is also used mounted directly on the body of the Jeep. For close work in dead end alleys the skid model has the advantage of being easily turned or backed around, but the advantage of the trailer model is that it can be very quickly unhooked so that the Jeep may be used for other purposes.

A 3/8 inch pressure hose connects the pump to the nozzle system which is attached to the dash of the Jeep. The nozzle system simply consists of two of the spraying elements from Hudson 2-4-D sprayers. The entire unit is made up of a short hose, cutoff valve, spray rod and three nozzle boom. Nozzles are the type that delivers a flat, fan shaped spray.

These units are fastened firmly to a one by three board by means of small U-bolts. The board in turn is bolted to the dash of the Jeep just below the windshield. Boom is operated at a slight downward angle. The two cutoff nozzles are within easy reach of the operator's right hand and it is possible to have instant control of either set of nozzles with the driver serving as operator.

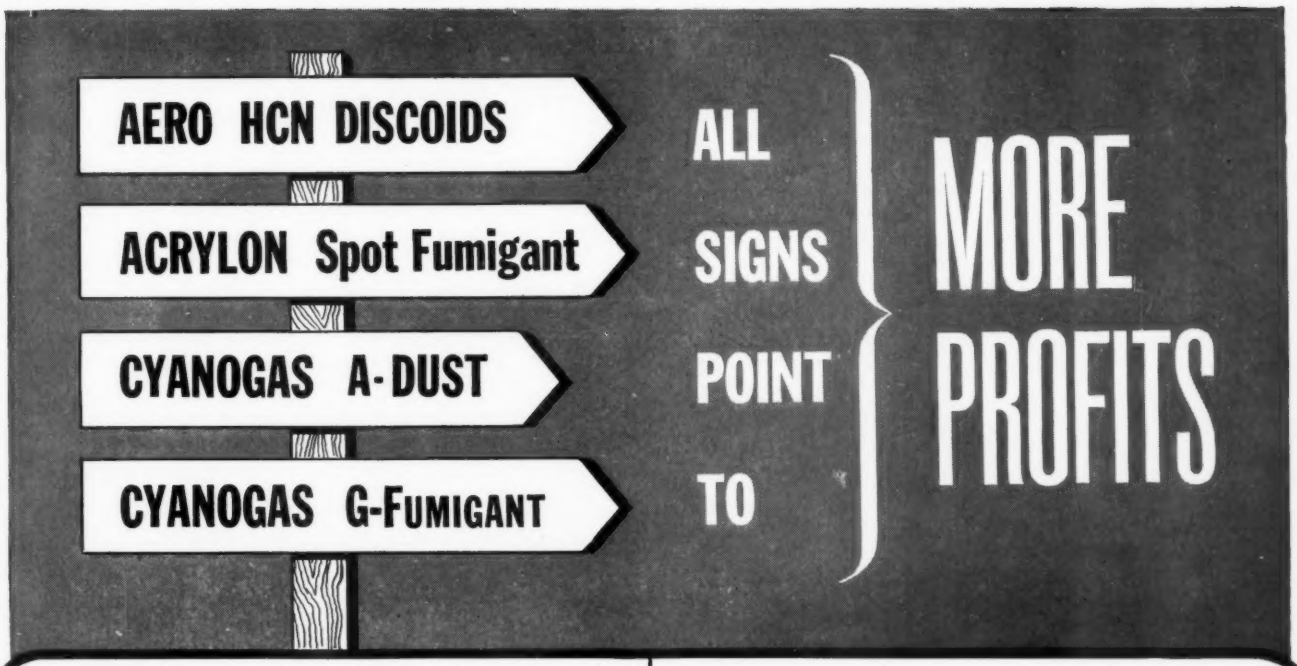
A 25-foot pressure hose is coiled on the front of the sprayer and fitted with a spray gun. This is used to spray important areas beyond the normal reach of the spray boom.

With the pressure regulator set at 100 lbs. and the Jeep moving at approximately six miles per hour, twelve blocks of alley were sprayed in nine minutes. The blocks were individually timed and found to take on an average of 45 seconds each and did not vary more than three seconds from the average. The twelve blocks required 28 gallons of spray or 2.33 gallons per block.

Using 5% actual DDT in the form of 50W powder, the spray deposit was quite visible on the backs of buildings and on fences. The pattern and amount of deposit was examined by Mr. J. D. Williams of the Sanitary Engineers division, Illinois Department of Public Health and by Health Commissioner George Doyle of the City of Springfield, Illinois. Both men pronounced the deposit as entirely satisfactory.

New Aerosol Fog Product

Socony-Vacuum Oil Co., Inc., has developed a new insect exterminator designated as "S/V Sovacide F." The product was developed especially for use in aerosol fogging.



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The most generally used fumigant in the Pest Control industry. More dwellings, industrial buildings, railroad cars, ships and stored commodities are fumigated with hydrocyanic acid gas than with any other fumigant. Commercially pure hydrocyanic acid gas absorbed in thin cellulosic discs. One-pound and forty-ounce containers readily accommodate dosage requirements. AERO HCN DISCOIDS are simply scattered from the can. No dirt or mess in application or clean-up. Where insects and rodents are a problem in enclosed spaces AERO HCN DISCOIDS provide the answer.

CYANOGAS* A-DUST

The ideal outdoor fumigant for "cleaning out" rat harborages in city dumps, sanitary fills, under sidewalks, tight floors and pavements, and in fields, along ditch banks and levees. Applied effectively and economically with the handy CYANOGAS FOOT PUMP.

Not a bait . . . CYANOGAS A-DUST liberates hydrocyanic acid gas in the burrow. Rats, adult and young, breathe the gas and die quickly. No dangerous residues left to be picked up by unwary children or pets. CYANOGAS A-DUST is ready for instant use and requires no further preparation.

ACRYLON* Spot Fumigant

The liquid "spot" fumigant used for the destruction of insects by direct application to food-processing machinery. Indispensable for servicing flour mills, bakeries and similar food-processing plants. Not a general space fumigant.

ACRYLON also has been used successfully to fumigate clothes closets and other small enclosures in the home and elsewhere. (Observe usual fumigation precautions.)

CYANOGAS* G-FUMIGANT

A dustless, sea-sand size granulation of Calcium Cyanide liberating hydrocyanic acid gas. The same positive fumigant but of lower strength than AERO HCN DISCOIDS. Unsurpassed for easy, economical fumigation of small storage buildings needing only low dosages of gas. (Not to be used in dwellings.)

*Reg. U. S. Pat. Off.

We shall be glad to send you full information concerning any or all of these insecticides and rodenticides.

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19th Progress Report

An International Termite Exposure Test

By

GEORGE M. HUNT
USDA, Forest Service, Forest Products Laboratory
Madison, Wisconsin

and

THOMAS E. SNYDER
USDA, Agricultural Research Administration, Bureau of Entomology and Plant Quarantine, Beltsville, Md.

THE NINETEENTH Progress Report — An International Termite Exposure Test by George M. Hunt and T. E. Snyder was recently published by the American Wood Preservers Association. This test was begun in 1928 and 1929 by the Bureau of Entomology in cooperation with the Forest Products Laboratory to determine the effectiveness of chemical preservatives in protecting wood from attack by termites and rot.

Originally the chemically impregnated wood was exposed in South Africia, Australia, Hawaii and Panama but due to difficulties in shipping and for economic reasons later expansions of the test were only made in Panama.

Pest Control operators are in general only indirectly interested in these tests of wood preservatives. While the tests show the toxicity of chemicals to termites certain chemicals (for instance copper naphthenate) effective as wood preservatives have not proven effective as soil poisons. Different results have been obtained under the various environments of the countries where the samples were exposed.

The results of this test compared with those obtained from many other tests gives a basis for general recommendations for specifications for wood preservatives; these are finally issued as federal specifications. From time to time these long-scale tests will have new chemical preservatives added to the experiment. Table 5 from this report follows:

TABLE 5.—CONDITION OF SPECIMENS (1931 SERIES) SUBJECTED TO TERMITE ATTACK AT BARRO COLORADO ISLAND, CANAL ZONE, AFTER ABOUT 16 YEARS SERVICE

Specimens placed in service August, 1931

Summary based on inspection data submitted by James Zetek, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture

Preservative	No. of specimens	Absorption of preservative	Absorption of preservative	Absorption of preservative	Absorption of preservative	Condition of specimens—May 1947						Average life Months
			Minimum	Maximum	Average	Good		Attacked by termites		Destroyed by termites		
			Lb. per cu. ft.			Number	Percent	Number	Percent	Number	Percent	
Coal tar creosote (Grade 1—A.W.P.A. specifications)	8	Oil	5.2	8.7	7.0	----	----	----	----	8[a]	100.0	120
Coal tar creosote (Grade 1—A.W.P.A. specifications)	8	Oil	11.5	14.9	13.6	2	25.0	4[d f]	50.0	2[a]	25.0	-----
10% coal tar creosote—90% petroleum (by volume)	8	Mixture	4.7	10.0	6.5	----	----	1[b]	12.5	7[c]	87.5	-----
10% coal tar creosote—90% petroleum (by volume)	8	Mixture	12.7	16.8	14.2	6	75.0	2[b]	25.0	----	----	-----
25% coal tar creosote—75% petroleum (by volume)	8	Mixture	5.0	9.8	7.0	----	----	----	----	8[c]	100.0	67
25% coal tar creosote—75% petroleum (by volume)	8	Mixture	12.6	16.0	14.0	6	75.0	1[b]	12.5	1[a]	12.5	-----
50% coal tar creosote—50% petroleum (by volume)	8	Mixture	5.4	8.5	7.1	1	12.5	2[d g]	25.0	5[c g]	62.5	-----
50% coal tar creosote—50% petroleum (by volume)	8	Mixture	10.4	17.3	14.5	6	75.0	2[b]	25.0	----	----	-----
75% coal tar creosote—25% petroleum (by volume)	8	Mixture	6.1	8.5	7.2	1	12.5	2[b]	25.0	5[c g]	62.5	-----
75% coal tar creosote—25% petroleum (by volume)	8	Mixture	10.1	19.3	14.8	4	50.0	3[b]	37.5	1[b]	12.5	-----
Petroleum	8	Oil	5.5	9.8	7.0	----	----	2[a]	25.0	6[b]	75.0	-----

[a]By decay and termites.
[b]By decay only.
[c]Decay in 4 specimens.
[d]Decay in 2 specimens.
[e]Decay in 3 specimens.
[f]2 specimens contain decay only.
[g]1 specimen contains decay only.
[h]Decay in 5 specimens.

TABLE 5.—CONDITION OF SPECIMENS (1931 SERIES) SUBJECTED TO TERMITE ATTACK AT BARRO COLORADO ISLAND, CANAL ZONE, AFTER ABOUT 16 YEARS SERVICE (Continued)

Specimens placed in service August, 1931

Summary based on inspection data submitted by James Zetek, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture

Preservative	No. of specimens	Absorption of preservative	Absorption of preservative	Absorption of preservative	Absorption of preservative	Condition of specimens—May 1947						Average life Months
			Minimum	Maximum	Average	Good		Attacked by termites		Destroyed by termites		
			Lb. per cu. ft.			Number	Percent	Number	Percent	Number	Percent	
Petroleum	8	Oil	12.3	16.8	14.4	3	37.5	2[b]	25.0	3[a]	37.5	-----
Shale oil (crude)	8	Oil	5.2	8.5	6.7	----	----	----	----	8[f]	100.0	35
Shale oil (crude)	8	Oil	11.6	16.3	13.9	----	----	1[b]	12.5	7[e i]	87.5	-----
Shale oil (distillate)	8	Oil	5.5	8.7	6.9	----	----	----	----	8[e]	100.0	39
Shale oil (distillate)	7	Oil	11.8	20.3	13.9	----	----	2[d h]	28.6	5[e]	71.4	-----
Water gas tar	8	Oil	5.5	9.3	7.2	1	12.5	1[b]	12.5	6[a]	75.0	-----
Water gas tar	8	Oil	11.4	17.8	14.6	1	12.5	4[e]	50.0	3[g i]	37.5	-----
Cannel coal oil	8	Oil	6.2	7.8	7.0	----	----	----	----	8[e]	100.0	59
Cannel coal oil	8	Oil	10.9	16.1	13.4	3	37.5	1[a]	12.5	4[a]	50.0	-----
1.3% beta naphthol—98.7% alcohol (by weight)	8	$C_{10}H_7OH$	.31	.44	.36	----	----	----	----	8[f]	100.0	18
2.6% beta naphthol—97.4% alcohol (by weight)	8	$C_{10}H_7OH$	.52	.79	.69	----	----	----	----	8[d]	100.0	20
3% beta naphthol—10% pine oil—87% petroleum (by weight)	8	Solution	4.8	9.2	6.8	----	----	----	----	8[e]	100.0	58
3% beta naphthol—10% pine oil—87% petroleum (by weight)	8	Solution	9.5	23.7	15.8	2	25.0	2[i]	25.0	4[g]	50.0	-----

[a]By decay and termites.
[b]By decay only.
[c]Decay in 4 specimens.
[d]Decay in 2 specimens.
[e]Decay in 5 specimens.
[f]Decay in 1 specimen.
[g]Decay in 3 specimens.
[h]One specimen contains decay only.
[i]Two specimens contain decay only.

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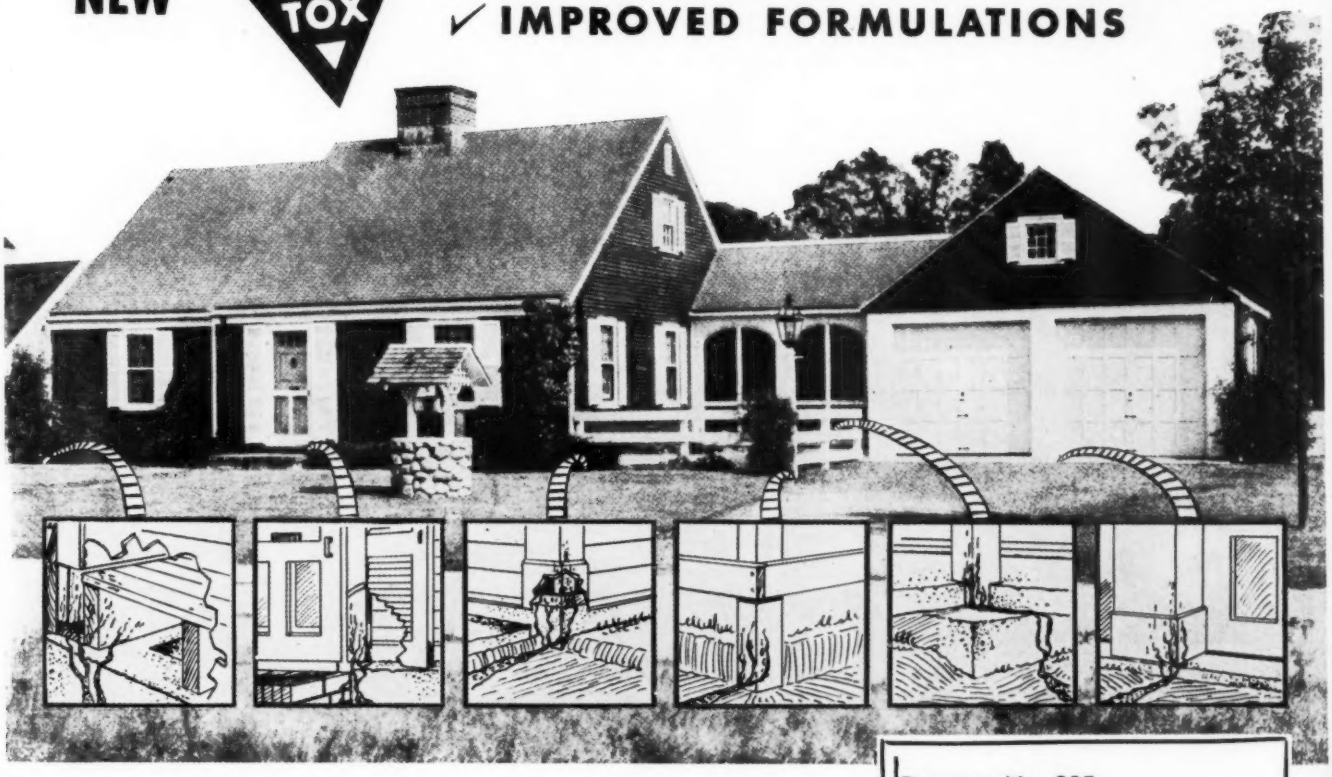

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Terratox No. 218

- Dissolves readily in water.
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- Absolutely odorless . . . especially desirable for treating buildings that store food and other materials highly vulnerable to odor absorption.

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TABLE 5.—CONDITION OF SPECIMENS (1931 SERIES) SUBJECTED TO TERMITE ATTACK AT BARRO COLORADO ISLAND, CANAL ZONE, AFTER ABOUT 16 YEARS SERVICE (Continued)

Specimens placed in service August, 1931

Summary based on inspection data submitted by James Zetek, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture

Preservative	No. of specimens	Absorption of preservative	Minimum	Maximum	Average	Condition of specimens—May 1947: Good Number	Good Percent	Attacked by termites Number	Attacked by termites Percent	Destroyed by termites Number	Destroyed by termites Percent	Average life Months
			Lb. per cu. ft.									
5% beta naphthol in an oil mixture	8	Oil	7.0	9.2	8.0	----	-----	----	-----	8[h]	100.0	94
5% beta naphthol in an oil mixture	8	Oil	11.4	19.5	14.8	----	-----	----	-----	8[i]	100.0	118
Pine oil	8	Oil	5.8	9.0	7.5	----	-----	----	-----	8[f]	100.0	18
Pine oil	8	Oil	11.5	21.6	14.3	----	-----	----	-----	8	100.0	24
Spirittine chemically treated pine oil	8	Oil	6.4	7.5	6.9	----	-----	----	-----	8[e]	100.0	87
Spirittine chemically treated pine oil	8	Oil	11.0	19.1	13.9	----	-----	----	-----	8[k]	100.0	65
Spirittine wood preservative[1]	8	Oil	5.5	9.3	7.0	----	-----	----	-----	8[j]	100.0	70
Spirittine wood preservative[1]	8	Oil	10.6	20.0	13.8	----	-----	2[a]	25.0	6[f]	75.0	-----
Termite oil No. 1[2]	8	Oil	6.2	8.7	7.3	----	-----	----	-----	8[d]	100.0	40
Termite oil No. 1[2]	7	Oil	12.2	17.2	14.5	----	-----	3[a]	42.9	4[e]	57.1	-----
Termite oil No. 3[2]	8	Oil	4.5	6.0	5.3	----	-----	----	-----	8[k]	100.0	31
Termite oil No. 3[2]	8	Oil	8.4	12.7	10.4	----	-----	----	-----	8[h]	100.0	92
4.8% dinitrochlorobenzene—95.2% petroleum (by weight)	8	Solution	3.8	9.5	6.5	1	12.5	----	-----	7[g]	87.5	-----
4.8% dinitrochlorobenzene—95.2% petroleum (by weight)	8	Solution	9.8	20.4	14.8	4	50.0	2[i]	25.0	2[f]	25.0	-----
9.1% dinitrochlorobenzene—90.9% petroleum (by weight)	8	Solution	3.4	11.9	6.8	----	-----	1[b]	12.5	7[g]	87.5	-----

[1]Pine tar derivative.
[2]Pine oil derivative.

[a]By decay and termites.
[b]By decay only.
[c]Decay in 5 specimens.
[d]Decay in 2 specimens.
[f]Decay in 1 specimen.
[g]Decay in 3 specimens.
[h]Decay in 6 specimens.
[i]Mostly by decay.
[j]Decay in 7 specimens.
[k]Decay in 4 specimens.

TABLE 5.—CONDITION OF SPECIMENS (1931 SERIES) SUBJECTED TO TERMITE ATTACK AT BARRO COLORADO ISLAND, CANAL ZONE, AFTER ABOUT 16 YEARS SERVICE (Continued)

Specimens placed in service August, 1931

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			Lb. per cu. ft.									
9.1% dinitrochlorobenzene—90.9% petroleum (by weight)	8	Solution	11.9	18.9	14.8	5	62.5	----	-----	3[a]	37.5	-----
5% dinitronaphthalene—95% petroleum (by weight)	8	Solution	4.5	9.6	7.4	2	25.0	1[a]	12.5	5[d]	62.5	-----
5% dinitronaphthalene—95% petroleum (by weight)	8	Solution	9.7	20.6	14.3	4	50.0	1[a]	12.5	3[a]	37.5	-----
9.5 and 10% dinitronaphthalene—90 and 90.5% petroleum (by weight)	8	Solution	5.0	9.3	7.0	----	-----	----	-----	8[d]	100.0	50
9.5 and 10% dinitronaphthalene—90 and 90.5% petroleum (by weight)	8	Solution	10.2	20.1	13.7	4	50.0	2[b]	25.0	2[f]	25.0	-----
1.3% tetrachlorophenol—98.7% alcohol (by weight)	8	C_6HCl_4OH	.29	.44	.38	----	-----	----	-----	8[b]	100.0	40
2.6% tetrachlorophenol—97.4% alcohol (by weight)	7	C_6HCl_4OH	.70	.79	.75	----	-----	----	-----	7[c]	100.0	74
4.8 and 5% tetrachlorophenol—95 and 95.2% petroleum (by weight)	7	Solution	5.8	9.9	7.1	----	-----	----	-----	7[g]	100.0	44
4.8 and 5% tetrachlorophenol—95 and 95.2% petroleum (by weight)	8	Solution	10.5	16.6	13.8	6	75.0	1[a]	12.5	1[a]	12.5	-----
9.1% tetrachlorophenol—90.9% petroleum (by weight)	8	Solution	4.6	10.7	7.3	1	12.5	1[b]	12.5	6[c]	75.0	-----

[a]By decay and termites.
[b]By decay only.
[c]Decay in 5 specimens.
[d]Decay in 2 specimens.
[e]Decay in 4 specimens.
[f]Decay in 1 specimen.
[g]Decay in 3 specimens.
[h]Decay in 6 specimens.

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			Lb. per cu. ft.									
9.1% tetrachlorophenol—90.9% petroleum (by weight)	8	Solution	10.8	19.0	14.1	6	75.0	2[a f]	25.0	----	-----	-----
4.9% carbazole—95.1% petroleum (by weight)	8	Solution	5.9	8.8	7.0	----	-----	----	-----	8[e]	100.0	50
4.9% carbazole—95.1% petroleum (by weight)	8	Solution	11.6	18.3	14.3	5	62.5	3[d f]	37.5	----	-----	-----
9.2 and 10% carbazole—90.8 and 90% petroleum (by weight)	8	Solution	6.3	8.7	7.1	----	-----	1[a]	12.5	7[e]	87.5	-----
9.2 and 10% carbazole—90.8 and 90% petroleum (by weight)	8	Solution	11.4	17.3	13.5	1	12.5	2[e f]	25.0	5[e]	62.5	-----
6% Ac-Zol[4] solution (by volume)	8	Solution	23.6	32.8	28.0	----	-----	6[b]	75.0	2[a]	25.0	-----
10% Ac-Zol[4] solution (by volume)	8	Solution	26.9	36.4	30.9	----	-----	8[b]	100.0	----	-----	-----
5.1% Tanalith-U[5] (by weight)	8	Salt	1.40	1.58	1.45	5	62.5	3[b]	37.5	----	-----	-----
No-D-K "B" (Wood-tar creosote)	8	Oil	6.1	8.5	7.0	----	-----	----	-----	8	100.0	37
No-D-K "B" (Wood-tar creosote)	8	Oil	12.4	18.9	14.0	----	-----	1[a]	12.5	7[e]	87.5	-----
5.6% sodium arsenite solution (by weight)	8	Na_2HAsO_3	1.28	1.62	1.47	----	-----	----	-----	8[a]	100.0	50
4.6% arsenic trioxide solution (by weight)	8	As_2O_3	.84	1.56	1.33	----	-----	1[a]	12.5	7[a]	87.5	-----
4.8 and 7.4% barium hydroxide solution (by weight)	8	$Ba(OH)_2$	1.34	1.99	1.58	----	-----	----	-----	8	100.0	17
2% sodium silicofluoride solution (by weight)	8	Na_2SiF_6	.36	.58	.49	----	-----	----	-----	8[g]	100.0	20
16.8% mono ammonium phosphate solution (by weight)	8	$NH_4H_2PO_4$	4.0	6.2	5.0	----	-----	----	-----	8	100.0	9
Celcure process[6] (Steamed 1 hour after treatment)	8	Solution	26.5	31.0	29.5	4	50.0	2	25.0	2	25.0	-----
Celcure process[7] (Steamed 1 hour after treatment)	8	Solution	21.0	33.0	28.3	8	100.0	----	-----	----	-----	-----
Celcure process[6]	8	Solution	24.1	31.4	28.3	5[k]	62.5	----	-----	3[a]	37.5	-----
Celcure process[7]	8	Solution	25.8	31.0	29.1	7	87.5	1	12.5	----	-----	-----

[4]Copper-zinc-phenol mixture.
[5]Fluoride-phenol-arsenic-chromium mixture.
[6]2.8% copper sulphate (crystals), 2.8% potassium dichromate, 1.3% pyroligneous acid solution, (by weight).
[7]5.6% copper sulphate (crystals), 5.6% potassium dichromate, 2.7% pyroligneous acid, (by weight).

[a]By decay and termites.
[b]Mostly by decay.
[c]Decay in 4 specimens.
[d]Decay in 3 specimens.
[e]Decay in 5 specimens.
[f]One specimen contains decay only.
[g]Decay in 2 specimens.
[h]Three specimens contain decay only.
[k]One specimen previously reported as attacked.

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COMMENTS by the Editor

Confusion? And How!

AS IF THE complexities in the maze of newer chemicals confronting PCOs isn't enough, some manufacturers, suppliers and even distributors are complicating the picture with gobbledygook they call "trade names." Maybe there's Hoositz Duo Dethly Threat or O'Brien's Tinatey Killem or even Hector's Etherial Blastem Ded, all of which are supposed to mysteriously wave the magic wand to do an effective control job in nothing flat! The only noticeable results manifest themselves in leaving the PCO stone cold in that he has a helluva time knowing just what he is going to get from these guys. Everybody'd be happier, we're sure, if the people we buy from would refrain from letting their imaginations run away with them and call a spade a spade — even if it's O'Brien's "Specially Mixed" Spade. The big boys have realized this all along and have helped the PCO by identifying their product with the accepted name, witness DuPont DDT, Velsicol "1068" Chlordane, Dow Methyl Bromide, Penick Pyrethrum and the like. Some of the others have tried to pull in sales by claiming a mystic "nothing" that makes their product better. PCOs have to concentrate their worries on learning how the new synthetics should be used most effectively and don't have time to decipher the nomenclature tagged on to some of the stuff being offered.

Price Fights

PRICE WARS in an attempt to lure contracts into one shop away from another have put many establishments in dire financial circumstances. This is particularly true where a customer has a chain of stores, plants, warehouses and the like and demands a flat-rate fee per place serviced.

In one case we know of a large candy manufacturer asked for bids from pest control operators to service their many retail stores. In the frantic fight to claim this plum, one operator against another and another against him shaved their bids until finally the contract was let to the lowest bidder at *one dollar* per store per month! We don't know what the candy manufacturer expected to get in the way of pest control and what's more, what could the PCO expect to give in return for this token remuneration? The inevitable happened. After a little more than a year during which the operator could not profitably keep his customer's premises pest free and complaints backfired, the chain decided to dispense with the service of this professional PCO and organized its own pest control crew. The cost to the chain for equipment, salaries and supplies is many times more than the meagerly sum of one dollar per store for which they expected a competent firm to do the same work. But the PCO had offered that bid price and the chain had accepted.

Satisfactory pest control work cannot be done "cheaply" and operators should not indicate that it can. When a good fee is paid, effective control can be expected by the client and the operator can produce results. We are degrading our profession in the eyes of our prospects when we indulge in price cutting and we are pricing ourselves out of business by doing so.

The National Pest Control Association, regional and local PCO groups along with state and federal government officials have been making the public aware of the importance of pest control. The purchasers of pest control services are willing to pay for a job well done and are willing to pay a fair price.

DDT Shortage

FROM A HEAVY surplus of stock in producers' and formulators' hands six months ago, the DDT market situation is stated to have taken an about-face. Stocks are still not really scarce, but the heavy unsold surpluses which caused manufacturing shut-downs in 1947 have been reduced far enough to arouse talk of a price increase in technical DDT. Some manufacturers are now reported to be unable to make immediate shipments. A few have announced their intention to advance prices about five cents per pound.

DDT has been selling for close to a year at figures which do not permit producers a fair margin of profit. In fact, based on material costs, prices have probably been below production costs. Severe competition and excess stocks have been the cause. The outlook is that the period of low prices is now behind us and those formulators and pest control operators who do not have stocks on hand, are going to pay higher prices during the next few months.

Extra Income

PACKAGED GOODS are sold by drug, department and hardware stores. Why not capitalize on this demand and make your office headquarters for everything relating to pest control? When customers have become accustomed to coming to your place of business for fly sprays, moth sprays, etc., which they will use themselves, there's a good chance they'll call you when a major job needs to be done. And when you've completed servicing a location and suggest a particular product you handle as a means the customer can help himself keep control, he'll not only appreciate and respect your professional methods, but you'll make a profit on the goods he buys.

SCARAT
FOR RATS

Its ODOR Terrifies!
Its TASTE Disgusts!
Its EATING "Kills"!

• • • • •

IMMUNIZE Bagging, Boxes, Cartons, Bins and other Vulnerable Containers against Rodents.

MIX SCARAT in Soya-Bean and Vegetable Plastics to protect them from hungry Marauders.

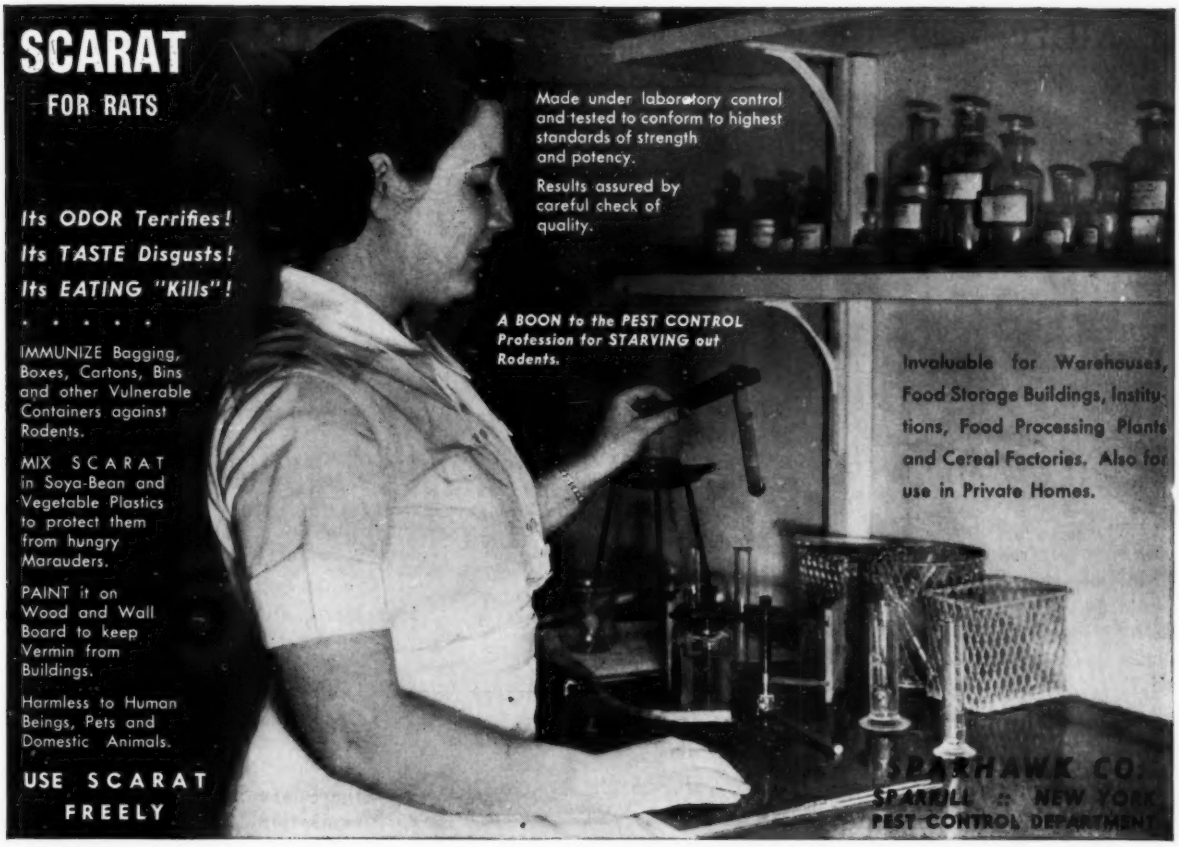
PAINT it on Wood and Wall Board to keep Vermin from Buildings.

Harmless to Human Beings, Pets and Domestic Animals.

USE SCARAT FREELY

Made under laboratory control and tested to conform to highest standards of strength and potency.

Results assured by careful check of quality.



A BOON to the PEST CONTROL Profession for STARVING out Rodents.

Invaluable for Warehouses, Food Storage Buildings, Institutions, Food Processing Plants and Cereal Factories. Also for use in Private Homes.

SPARHAWK CO.
SPARRILL :: NEW YORK
PEST CONTROL DEPARTMENT

Guaranteed!

YOUR MONEY REFUNDED . . .

if K. B. Brand hose does not prove to outwear and outlast any comparable hose! Such guaranteed service can only be offered because K. B. Brand hose is an 18 year proven product. We know what it will do!

Write for your FREE SAMPLE today!

K.B.BRAND
ALL-PURPOSE
EXTERMINATOR SOLUTION HOSE

It's a specially compounded tube and cover of finest quality. It's light and flexible • easy to handle • and is highly resistant to wear and the action of any type of exterminator solution.

Takes high pressure, too, for year after year without weakening. No swelling or seeping of solution . . . no chance of hose splitting or bursting.

Write at once for prices and descriptive folder on hose and *couplings*.

ALSO ROCK WOOL HOSE AND CYANIDE HOSE

BROADWAY RUBBER CORPORATION
LOUISVILLE 2 — **Manufacturers since 1901** — **KENTUCKY**

Letters

TO THE EDITOR

More Scientific Articles

Gentlemen:

I am enjoying the magazine very much and think the new format which is being used now is a decided improvement. I would like to see more articles of a truly scientific nature included in the magazine, ones that are substantiated by scientific experimentation.

Very truly yours,
Gerhard P. Kretzschmar

Houston 5, Texas
May 24, 1948

You are right Mr. Kretzschmar! We are making every effort to include more scientific material in the pages of PESTS and Mrs. Eileen Donohoe's article on Pyrenones in Roach Control, found on page 9 of this issue is just such an article. Our goal is less policy and more up-to-the-minute facts and reports on the latest findings and experiments for more effective pest control work.

Results

Editor of Pests:

On behalf of my Company, we would like you to know the results achieved through our advertisement in May Pests and Their Control have been nothing short of phenomenal. We have received replies from several South American countries, as well as over one-hundred and thirty (130) requests for our Gallant Termite Barriers throughout the United States.

In discussing these results with our advertising agency, they believe this to be some sort of record, due to the necessary limited size of your circulation to a specialized trade. This is another way of saying that quality is preferable to quantity.

Wishing you continued success in your new location.

Sincerely,
C. Benjamin Gallant
Uneeda Termite Service, Inc.

West Newton, Mass.
June 1, 1948

Thank you, Mr. Gallant, for your confirmation of our belief that PESTS advertising brings results. One classified advertisement in our May issue, alone, brought in over 25 replies to our Cleveland office.

"Challenge From the Baking Industry"

Dear Editor:

I want to tell you I think the May Pests was outstanding. I think the Holmes' article, "A PCO Challenge from the Baking Industry," is one of the best I have read in a long while. He is absolutely right that PCOs need to get on the ball if they expect to retain valuable clientele. On the other hand, there is another side to the story. This really deserves an editorial on the pros and cons.

Sincerely yours,
J. J. Davis
Chief in Entomology

Purdue University
Lafayette, Indiana
May 20, 1948

Confidence

Dear Mr. Nelson:

". . . Undoubtedly it will be pleasing news to you to know that up to this writing we have never advertised in any pest control magazine, but were so impressed with your April issue that we have decided now to use some space in your paper advertising for licensees. Our advertising agents have already been instructed to prepare the ads . . ."

Very truly yours,
The Antimite Company
H. R. Isherwood,
Vice President

Saint Louis, Mo.
April 16, 1948

The Antimite advertisements, the first of which appeared in our June issue, seek additional PCOs to become licensees for their carefully outlined termite control methods. Each Antimite dealer is supplied with a thoroughly written manual outlining the life history of termites, the Antimite principle of control, and over fifty drawings of construction elements with recommended changes for effective termite control.

Little Known FACTS

Relating to Pest Control

By J. R. Gross

Where the Slop Water Sleeps Look for the Fruit Fly

Fruit flies, those little dancing spots before your eyes, are a real aggravation to housewives, bartenders, Restaurateurs, and fountain managers. Seemingly out of nowhere they come, and linger on through the winter season.

Fermenting fruits, vegetables, or juices are the most obvious sources of breeding. But repeatedly we find heavy infestations where there are no such violations of sanitation, not even one rotting potato in the bottom of the bin or lost under the fountain. What then?

Dish-water from sinks, drain water from refrigerators or ice boxes, and the slop water from floor scrubbings are saturated with food particles. Under the proper conditions they become fermented and make the ideal breeding place for the fruit or vinegar fly.

One foul, soured mop can breed many thousands. The same is true of brooms, rags, or paper. Garbage-laden water from sinks, coolers, and ice boxes often clogs a floor drain and spreads over the floor. There it forms a thin, sour gelatinous layer, paradise for the fruit fly.

When kitchen floors are scrubbed or mopped, the slop seeps into crevices, under the mold boards, and other hidden places. There it quickly ferments into a perfect soup for the flies.

So—track down the dish-water, refrigerator drainage, and floor slop. *Note:* House flies also find slop waters are a good medium for breeding.

PUT 'EM ON THE *Spot*

use NEOCID DDT COMPOSITIONS

Roaches, bedbugs, fleas, mosquitoes haven't a chance when you—

***Dust with* NEOCID A-10** — a ready-to-use DDT powder

***Spray with* NEOCID D-30** — after dilution with deodorized kerosene

These highly effective formulations were developed by Geigy Company, *"Originators of DDT Insecticides."* They are backed by 9 years of experience in DDT compounding and application.

If your local dealer doesn't have these NEOCID* DDT Compositions, just send us his name and address.

*Reg. U.S. Pat. Off.

ORIGINATORS OF DDT INSECTICIDES

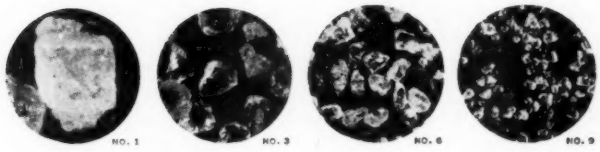
Geigy **GEIGY COMPANY, INC.**

89 Barclay St., New York 8, N. Y.

SOLVAY

TRADE MARK REG. U. S. PAT. OFF.

Para-dichlorobenzene



THERE'S NONE BETTER!

For strength... purity... uniformity—for *top quality*—specify SOLVAY PARA-DICHLOROBENZENE.

SOLVAY SALES DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

SINCE 1874

PHOSPHOROUS PASTE

to Absolutely Eliminate

ROACHES AND RATS

J-O Phosphorous Paste is so compounded as to eliminate the hazard of fire and possesses advantageous qualities peculiar to itself. A properly made **Phosphorous Paste** such as **J-O** is absolutely safe to use. It cannot burn or set fire to other substances.

Phosphorus, however, remains basic in the compound because it is the most toxic chemical used in pest exterminating, being more toxic than arsenic, strychnine or thalium. Approximately one-tenth of a grain will kill a rat. Phosphorous is a slow poison, taking from 6 to 18 hours to kill. Due to its slow but positive action, the rat succumbs to this poison. He becomes very uncomfortable and, seeking fresh air and water, in most cases, leaves the premises and dies in the open.

For all species of roaches, this product is **UNEXCELLED.**

JOHN OPITZ, INC.
50-14 39th Street, Long Island City 4, N. Y.
Manufacturers of Exterminating Products Since 1874

Poisons are Dangerous

A Guest Editorial by

Justus C. Ward

Chief Pharmacology and Rodenticide Section
Insecticide Division, P&MA
United States Department of Agriculture

HISTORY is being made today. This fact is just as true in the field of pest control as it is in the field of political science or atomic research. New chemicals are appearing with a speed far beyond the ability of research biologists to test them. It is a serious matter to learn how to use new poisons fast enough to satisfy commercial demands, and at the same time to protect the public interest.

That this learning process is often slow may be a major factor in explaining why such a small number of the potentially useful economic poisons have reached the point of either public sale or controlled use by qualified specialists. In the search for perfection in control agents, many products having a degree of promise have been set aside in almost every screening laboratory. Even so, the list of new economic poisons which have been introduced within the last five or six years is rather imposing. DDT, BHC (666), Toxaphene, Methoxychlor, Chlordane, Hexaethyl tetraphosphate (HETP); Tetraethyl pyrophosphate (TEPP), Parathion, ANTU, and Compound 1080, are all names or symbols for well known products.

It seems to be an inherent trait of the American people that the major emphasis in evaluating a new product is how well will it do the job for which it has been advertised. The fact that the formula may be dangerous to handle, that it may kill beneficial animals as well as the pests for which it was intended, and that it may have obscure or unknown hazards, does not seem to be very important — until a few people are made sick, or a pet has been poisoned, or, even a fatality or two have occurred. Then the question usually comes down to what regulations must be placed around the offending poison to reduce its destructive potentialities without losing its effectiveness — particularly to the persons who are capable of using the poison with judgment.

It is often impossible to have all the answers before a new material is released. The spectacular distribution of DDT is a good example — since even yet, research agencies are finding out new things about this poison; and many of the DDT chemical relatives still do not have clear records on the chronic poisoning dangers. Another product which has had a great deal of interest surrounding its announcements is hexaethyl tetraphosphate. This substance is no longer thought to be a true compound, and it was named as an illustration of the way in which rather widespread publicity for a poison had been started before its high skin absorption was fully studied. When the research laboratories began intensive work to find out just how bad the skin hazards really were for the whole group of organic phosphates, including hexaethyl tetraphosphate (really impure tetraethyl pyrophosphate); tetraethyl pyrophosphate; parathion; and a series of other chemicals of like structure, they were found to be rather bad. So far the usual recommended methods of use have minimized the human hazards by reducing the probability of exposure. It must be remembered, however, that this class of compounds is dangerous, and must be handled with caution to avoid accidents.

Unfortunately, the quotation, "Familiarity breeds contempt" is all too true in the field of handling economic poisons. The pest control industry is well aware of the efforts which have been made to restrict sales of Compound 1080 to organizations whose personnel would be capable of handling a poison of this type. The governmental agencies which were responsible for the discovery and early testing of Compound 1080, all agreed that it was a spectacular new product, but that its use should be restricted. The manufacturer concurred in that opinion, and stringent rules were set up to insure that proper care would be exercised by all persons handling this material. The system has worked fairly well, but lately there have been too many accidents. Careful investigation of the accidents disclosed the fact that most of the trouble has been caused by the inadvertent violation of the established recommendations. Perhaps the fact that no accident had occurred in the vicinity, or that the system had been used for some time, or that the regulation seemed too restrictive, all combined to give a sense of false security. Then tragedy struck: another death occurred. And the reason was usually that somebody was careless, and did not follow directions.

This situation with Compound

Justus C. Ward has recently transferred to his new position with the Department of Agriculture at Washington, D. C., after several years as Pharmacologist with the U. S. Fish and Wildlife Service at the Wildlife Research Laboratory, Denver, Colorado.

In addition to the Department of Agriculture work, Mr. Ward is Chairman of the Committee on Toxicity and Antidotes of the Association of Economic Poisons Control Officials. In that capacity, he would appreciate reports of accidents which can be traced to economic poisons. The Committee is making a survey of accidents and their causes in order to aid in formulating instructions designed to prevent further casualties.

Get On the Band Wagon

Follow the Crowd With PER-MO Profits

★ **PER-MO 5 YEAR GUARANTEE MOTH PROOF LIQUID**
Packed in Pints, Quarts, ½ gals., gals., and 5 gal. containers

★ **PER-MO FLAMEPROOF LIQUID**
Packed in Gallon containers or in Drums.

★ **PER-MO RAT & MICE LIQUID**
Packed in 8 oz. bottles or in gallon containers.

★ **PER-MO RAT BITS MADE WITH RED SQUILL** (FORTIFIED)
Packed in 4 and 16 oz. containers or in Bulk.

★ **PER-MO RAT PASTE, MADE WITH RED SQUILL** (FORTIFIED)
Packed in 4-8-16 oz. jars, and in Bulk.

★ **PER-MO RAT PASTE, MADE WITH ANTU**
Packed in 4-8-16 oz. jars, and in Bulk.

★ **PER-MO "CHEK" DEODORANT**
Packed in Quarts or in Gallons.

WE WILL SHIP YOU A GENEROUS SAMPLE OF ALL THE ABOVE PRODUCTS FOR $5.00 EXPRESS PREPAID. Send Check or Money Order.

PER-MO
STANDS THE TEST
IT'S BY FAR THE BEST

★ All Per-Mo Products Packed Under Your Private Label If Desired.

Write Today . . . Full Particulars First Letter

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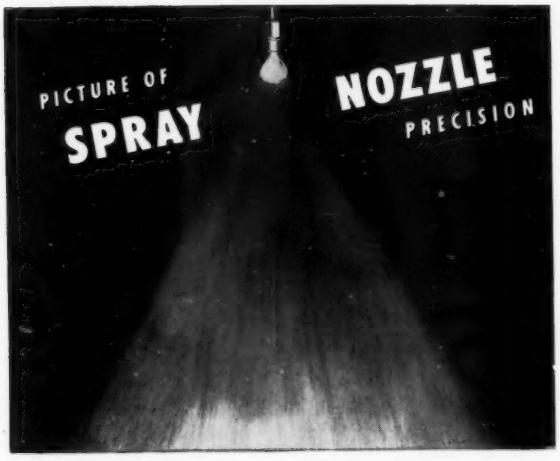

Specialized engineering and precision construction have only one purpose here . . . to give you exact control of spray pattern, distribution, and atomization . . . as well as impact where required, for any given liquid volume and pressure. For your requirements, you will find that Spraying Systems Spray Nozzles can always give you more in performance . . . to improve operations and lower cost. Catalog 22 gives you all the facts.

SPRAYING SYSTEMS CO.
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WRITE FOR CATALOG 22

THE INSIDE STORY

PETERMAN PROFESSIONAL LINE

PETERMAN HAS THE KNOW-HOW:

For the large-scale user, be he PCO or other, we believe that our practical laboratory and field work on products is of value. We know how to formulate, how to evaluate, and how to manufacture quality products.

PETERMAN INSECTICIDES ARE TAILOR-MADE:

We sell only quality products tailored for their intended jobs and correctly labeled to meet all legal requirements. . . . Peterman can fill your needs for quality products.

Quality Insecticides for Quantity Users

WILLIAM PETERMAN, INC.
411 Wilson Avenue
NEWARK 5, N. J.

1080, and all other highly toxic poisons, has placed a definite responsibility on the governmental agencies to which the control of economic poisons has been assigned. Since most products of value in this field possess some hazard to the user, there is both a moral and a legal responsibility to see that the dangers are determined and the user warned against them. Under the law, this obligation devolves directly upon the manufacturer, and the governmental agencies are set up to assure the public that this obligation is fulfilled.

From the viewpoint of the commercial pest control operator, all of this means that he should be able to get more specific information about the materials with which he must work. This places on the pest control operator the need for continual study as one of the essentials for a good operator. Eventually, it would be like an excellent development if all handlers of the stronger poisons would be required to possess full professional ability. Each new agent makes the job more complex, and better qualified men are needed. The National Pest Control Association is recognizing the situation, and is trying to do something about it through an extensive educational system of short courses. It may be necessary to hold a school of limited scope to discuss and demonstrate how to handle each new and strange poison. There is no future in the pest control field for a static individual — it takes continual study to even keep abreast of things in our present age. The leadership which the pest control industry has and hopes to retain must be based on its members having thorough knowledge of the multitude of materials — new or old — with which they work. The price of that knowledge is ceaseless study.

Remember, avoidance of accidents is the only good way to keep out of trouble. Sometimes the decision of where not to use a poison is infinitely more important, however, than to know how to use it. Good pest control is gained by combining sound technical training with good judgment.

The Role of PCOs in a Community-Wide Insect and Rodent Control Program

HAROLD E. JENNINGS

Regional Vice-President, National Pest Control Association

THE MEMBERS of our industry are proud and pleased to be recognized by the joint invitation of the Chicago Board of Health and the U. S. Public Health Service to attend its "Insect and Rodent Control Seminar for Pest Control Operators," May 20-21, 1948. By mutual respect and cooperation this joining of forces can do much for the public welfare in our city.

Before the formation of the National Pest Control Association a meeting such as this could have had little value. The diversity of opinions of members in our industry on good practices and effective chemicals were as wide apart as the poles. "Secret" methods that were the *standard* rather than the *unusual* stock in trade of the operators did not allow cooperation in any combined effort.

We have all learned to laugh at some of these so-called secrets that we held and cherished as the life blood of our individual businesses. We learned that many of our effective "secrets" were common knowledge to many of our competitors. By open discussions and clinics in which the leaders of the industry freely told of their successes and failures we gradually banded the good together and openly and jointly condemned the bad.

There is much still to be done: *There always will be a job to do* in constantly improving our methods and the chemical tools that we use. We welcome any agency that invites us to learn new ways to do a better job.

The Chicago Health Department and the U. S. Public Health Service will find our group a militant and forceful ally in their campaign for a more healthful city and nation.

The Chicago pest control companies represented at this meeting cover more food processing plants, restaurants, and other food handling establishments in a day than the small group of Health inspectors provided for in our city budget could cover in six months.

Our cooperation could be used as an important auxiliary to this important Health Department service. By *education* of our clients we could help accomplish the aims of the Health Department's overworked personnel. A large segment of the public *wants* to comply with sanitary regulations for the public good — this is proved by the record. It may be astonishing to some but there are large groups of good businessmen in the food industries who actually pay our firm for being a sanitation policeman in their plants.

A few years ago it would have been inconceivable that hard headed business men would *pay* a sanitation inspector to send notices telling them about their own infractions of the law or of good sanitation practices. Today it is good business.

We have come a long way as an industry and we are pleased to be recognized by the Chicago Health Department and the U. S. Public Health Service.

We will never claim to know all the answers in this work — but we are now organized to learn more quickly and to teach one another by well planned and ably led clinical discussions of the problems in our business and our profession.

Our members regularly meet with, and have earned the respect of, leading entomologists, chemists, and rodent control men of the nation. I doubt if any business group ever started with a less

NOTE: Based in part on a paper presented by Mr. Jennings at the "Insect and Rodent Control Seminar for Pest Control Operators" sponsored by the Chicago Board of Health and U. S. Public Health Service, May 20-21, 1948.

Use **PRENTOX**

CHLORDANE (Concentrates & Dust)

PYRETHRUM (Powder & Extract)

RED SQUILL (Powder & Liquid)

DDT PRODUCTS

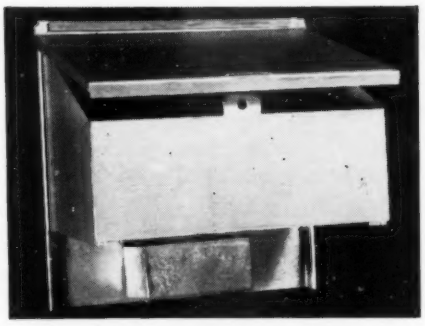
For **PEST CONTROL**

MICRO-MESH 50% DDT POWDER

Made in Clay base
available for immediate
delivery.
Packed in 50 lb. drums.

R. J. Prentiss & Co., Inc.

110 WILLIAM STREET NEW YORK 7, N. Y.



RODENT CONTROL STATION

6-12 stations $2.00 each
12 or more $1.75 each

MICE-GLUE
GETS MICE LIKE FLYPAPER GETS FLIES
10 lbs. $6.00 25 lbs. $13.50 100 lbs. $45.00

BIRD-REPELLENT
Keeps Pigeons, Starlings and Other Birds from Buildings
10 lbs. $6.00 25 lbs. $13.50 100 lbs. $45.00

PHOSPHOROUS-PASTE
For Rats, Mice and the Large Brown and Black Roaches
10 lbs. $4.25 25 lbs. $9.00 100 lbs. $32.50

PEST CONTROL CHEMICALS CO.

324 BROADWAY WRITE FOR DETAILS BUFFALO, N. Y.

New Profits . . .

FOR P. C. O.'S

NOW AVAILABLE
The amazing liquid that STOPS the spreading of Flames!
FLAME-CHEK

FLAMEPROOFS Rugs, Drapes, Upholstery, Paper, etc.

USED IN Clubs, Hotels, Restaurants, Theatres, Churches, Halls, Schools, etc.

- Applied by spraying
- No Special equipment
- Nation-wide approval

FLAME-CHEK

Write for Samples and Particulars

MOTH-CHEK ENDS MOTH DAMAGE for 5 YEARS

Yes • You can make New and Greater Profits with MOTH-CHEK which protects or pays the damage. Write for details.

- ODORLESS
- COLORLESS
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- SAVES TIME
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- SAVES WORRY

MOTH-CHEK
5-YEAR GUARANTEED MOTH PROTECTION

CHEK PRODUCTS CO., INC.

31 NASSAU PLACE, EAST ORANGE, N. J.

favorable background and advanced to a more respected position in the eyes of those who are competent to judge than has our industry in the past ten years.

The aggressive leadership of our national secretary has been responsible for much of that accomplishment. You all know and honor Wm. O .Buettner for the job he has done.

Men from Chicago, Mr. C. Norman Dold and the late Walter S. McCloud, have given much of their time and effort as presidents of the National Pest Control Association to further the education of our group and lift it toward professional status. We all recognize the work of Professor J. J. Davis of Purdue, Dorr D. Green of the U. S. Fish and Wildlife Service, Galen Oderkirk, W. E. MacCauley, former assistant Illinois state entomologist, George Decker, the present Illinois state entomologist and many others in the mid-west who have helped us qualify for recognition.

Dr. C. L. Williams of the U. S. Public Health Service has long been one of our best friends and most constructive critics.

Our industry appreciates the help of such industrial advisors as Dr. C. A. Vincent-Daviss of the duPont Company, Dr. Alfred Weed, Dr. W. E. Dove, Dr. George H. Chapman and a long list of men who knew *that our industry was the best available tool for insect and rodent control* and used their information and experience to improve that tool instead of joining those who liked to call us "racketeers."

Racketeers don't go to the universities and annual meetings and meetings such as the Seminar in Chicago to learn how to serve the public better! Racketeers don't contribute to research funds and scholarships for the advancement of the sciences on which a new profession is based.

No, we don't know all about pest control — *but we are as well qualified a group as is available for the job* and every year we will strive to *continue* to be the best group available for any pest control job. What *is* the *PART* of the pest control operator in the

(Continued on page 48)

PATENTS
RELATING TO PEST CONTROL
BY

DR. R. C. ROARK
U. S. Department of Agriculture

2,434,100 (Jan 6, 1948; appl. June 27, 1945). 2-CARBOXY-HALOGENO 1,4-THIACHROMANONE. Euclid Wilfred Bousquet, Wilmington, Del. — E. I. du Pont de Nemours & Company, Wilmington, Del. — The products of this invention are useful as bactericides, fungicides, insecticides and moth-proofing agents.

2,434,204 (Jan 6, 1948; appl. May 20, 1944). PREVENTION OF DETERIORATION OF GRAIN. Charles G. P. Feachem, Northwich, England — Imperial Chemical Industries Limited.

2,435,071 (Jan. 27, 1948; appl. July 19, 1943). AMIDES OF CYCLIC SULFONES. Theodore W. Evans, Oakland, Rupert C. Morris, Berkeley, and Edward C. Shokal, Oakland, Calif. — Shell Development Company, San Francisco, Calif. Some of these amides are of value as addition compounds to insecticides, the amides having the property of enhancing the action of the usual insecticides of the type of pyrethrum.

2,435,219 (Feb. 3, 1948; appl. Sept. 17, 1947). ART OF DEHYDRATING AND IMPREGNATING WOOD. Monie S. Hudson, Spartanburg, S. C.

2,435,317 (Feb. 3, 1948; appl. Oct. 20, 1943). INSECT TRAP. Edward N. McGrew, Fort Smith, Ark.

2,436,919 (Mar. 2, 1948; appl. Oct. 9, 1944). FLY SPRAYS COMPRISING AN N-ALKLPHTHALIMIDE AND DDT. Samuel I. Gertler and Herbert L. J. Haller, Washington, D. C. — United States of America as represented by the Secretary of Agriculture. — A fly spray comprises a member selected from the group consisting of N-butylphthalimide and N-amylphthalimide as its essential knockdown agent and 2,2bis (p-chlorophenyl)-,1,1,1-trichloroethane as its essential active insecticidal ingredient, incorporated in a mineral oil carrier.

2,436,920 (Mar. 2, 1948; appl. Oct. 9, 1944). FLY SPRAYS COMPRISING ON N, N-DIALKYLCINNIMAMIDE AND DDT. Samuel I. Gertler and Herbert L. J. Haller, Washington, D. C. — United States of America as represented by the Secretary of Agriculture. — A fly spray comprises a member selected from the group consisted of N,N-dipropylcinnamamide and N,N-diisopropylcinnamamide as its essential knockdown agent and 2,2-bis(p-chlorophenyl)-1, 1, 1-trichloroethane as its essential active insecticidal ingredient, incorporated in a mineral oil carrier.

2,437,170 (Mar. 2, 1948; appl. July 14, 1945). DODECYLAMINE SALT OF 2-MERCAPTOBENZOTHIAZOLE AND PROCESS FOR MAKING THE SAME. Arthur Minich, Westfield, N. J. — Nuodex Products Co., Inc., Elizabeth, N. J. — The patentee claims as a new composition of matter, a fungicidal and insecticidal oil-soluable dodecylamine salt of 2-Mercaptobenzothiazole.

2,437,248 (Mar. 9, 1948; appl. Sept. 6, 1945). RATTRAP. Arthur C. Fleig, Orange, Texas.

2,437,427 (Mar. 9, 1948; appl. June 14, 1945). INSECTICIDAL COMPOSITIONS COMPRISING A PHENYL ESTER OF CAPRYLPHENOXYACETIC ACID. William F. Hester, Drexel Hill, and W. E. Craig, Philadephia, Pa. — Rohm & Haas Company, Philadelphia, Pa. — An insecticidal composition comprises as a toxic agent a water-insoluble, organic solvent-soluble phenyl caprylphenoxyacetate dispersed in a carrier.

2,437,447 (Mar. 9, 1948; appl. Mar. 5, 1945). FLY CATCHING DEVICE. John C. Tarbell, Springfieldl, Mass.

2,437,527 (Mar. 9,1948; appl. June 14, 1945). INSECTICIDAL COMPOSITIONS FROM HALOCAPRYLPHENOXYACETIC ACID. William F. Hester, Drexel Hill, and W. E. Craig, Philadelphia, Pa. — Rohm & Haas Company, Philadelphia, Pa. — An insecticidal composition comprises as a toxic agent a halocaprylphenoxyacetic acid and a carrier therefor.

2,437,963 (Mar. 16, 1948; appl. Mar. 24, 1943). METHOD AND APPARATUS FOR PRODUCING AEROSOLS. Irving Langmuir and Vincent J. Schaefer, Schenectady, N. Y. — General Electric Company. — A method of producing an aerosol comprises vaporizing a material which does not tend to evaporate at ordinary atmospheric temperatures in an enclosed space at a sufficiently high rate to result in a pressure in the range of about 9.4 to 20 pounds per square inch guage pressure, and ejecting such vapor into the cooler atmosphere at a velocity of about 143 meters per second.

2,438,370 (Mar. 23, 1948; appl. July 27, 143). INSECTICIDE. Allen H. Lewis, Berkeley, Calif. — California Research Corporation, San Francisco, Calif. — An insecticidal composition comprises as its principal toxic ingredient pyrethrum and the benzene sulfonic acid amide from the reduced nitrogen bases from petroleum

2,438,900 (Apr. 6, 1948; appl. Apr. 2, 1945). PROCESS FOR SEPARATING BENZENE HEXACHLORIDE ISOMERS. William Herbert Cooke, Liverpool, and James Crosby Smart, Widnes, England. — Imperial Chemical Industries Limited. — A process for treating crude benzene hexachloride to obtain a mixture of isomers containing an enhanced proportion of the gamma-isomer, comprises extracting the crude benzene hexachloride with an amount of a selective solvent taken from the class consisting of aliphatic hydrocarbons, chlorinated aliphatic hydrocarbons, and cycloaliphatic hydrocarbons having a 6-carbon atom ring sufficient to dissolve gamma-isomer and leave a substantial proportion of the alpha-isomer undissolved, and separating the solid alpha-isomer from the gamma-isomer-enriched solution.

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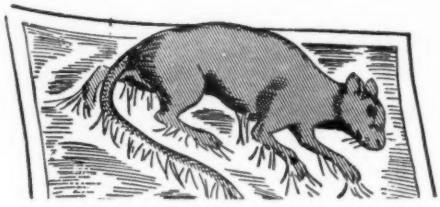

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PCO NEWS...

James W. Martin

Westvaco's Martin in South

James W. Martin, Jr. is now representing Westvaco Chemical Corporation, New York, for agricultural insecticides and fumigants through the deep-south. Operation from headquarters in Greenville, Mississippi, Martin is available to assist users of Westvaco DDT, Benzene Hexachloride and other Westvaco chemicals.

Wedding Bells for Don Sanderson

On May 20th, Donald W. Sanderson, Reliable Exterminators, Ltd., 64 Wellington St., W. Toronto, Canada, married Eileen Audrey Thorne. Don took over his dad's business when the latter died last year. The newly weds picked New York city for their honeymoon. Heartiest congratulations to the new Mr. and Mrs. Sanderson.

Dr. Creighton on Research Project

Dr. and Mrs. John T. Creighton left June 9th for Costa Rica, Central America. Dr. Creighton, who is chairman of the Florida Structural Pest Control Board in Gainesville, is headed for our sister hemisphere on a research project involving both plant and animal pests at the University of Costa Rica. They will return in September.

Dr. Edward Bocker Dies

It is with a deep feeling of sorrow that we advise the industry of the passing of Dr. Edward Bocker of the New York City Health Department. Dr. Bocker was in his 69th year when he succumbed to a heart attack at his home on Sunday, June 13th.

Dr. Bocker was indeed a fine friend of our industry and since the inception of Section 104 of the Sanitary Code, was more like a father to whom we could turn for advice and guidance. Dr. Bocker was the last of the original three members of the Fumigant Board. We know that the sudden passing of Dr. Bocker will come as a shock to many. Our industry has lost a truly great friend. Funeral services were held Tuesday evening, June 15th, 8:30 P. M. at the Denis S. O'Connor Funeral Home and he was buried at the Lake Ronkonkoma Cemetery, Lake Ronkonkoma, Long Island, N. Y.

Our deep feeling of sympathy goes to Dr. Bocker's beloved wife, Loretta and son, Edward, who reside at 211 Beach 146th Street, Belle Harbor, New York.

"Carny" Carncross is 45

No less than 50 Little Neck clams and boiled lobster made up Ivan B. Carncross' birthday banquet set by Mrs. Marion Carncross and son, Jim. "Carny," who is head of the Syracuse Chemical Co., was celebrating his 45th such occasion and seafood is his dish. We don't know the exact date the celebration was held, for in the excitement, they forgot to tell us. Must have been in early June, however. There was tossed salad to accompany the main course, but no dessert was on hand, since "Carny" doesn't care for such delicacies. Presents were in keeping with the Carncross hobbies of hunting and fishing which he exercises at his summer camp, Swift Water Lodge, on the middle branch of the Moose River, near Old Forge, N. Y. *Pests* congratulations to Mr. Carncross.

John T. Ryan, Jr.

Ryan Named Vice President

John T. Ryan, Jr. has been elected Executive Vice President of Mine Safety Appliances Company, Pittsburgh, Pennsylvania. Ryan, who joined the company in 1936 after graduating from Pennsylvania State College and Harvard Business School has been successively Sales Engineer, Assistant General Manager and General Manager.

Herman Militzer Marches to Altar

Herman C. Militzer of H & M Laboratories, Toledo, Ohio was married to Mrs. Martha Johanna Breese on Saturday, May 8th. Despite Herman's secretive plans for a small wedding, over two hundred friends were at the church and reception. His 93-year old mother baked a beautiful and delicious wedding cake and toasts were drunk with 120-year old Cognac that Herman has been saving for this occasion. For their honeymoon, the couple drove to Columbus, Zanesville, Marrietta, Ohio and over the Skyline drive through the Blue Ridge and Smoky mountains of Virginia. Now the Militzers are making plans to remodel their home at 535 Virginia Street in Toledo. Best wishes for long happy years go to Herman and his bride from his many friends in the industry.

Frank Nelson to Stockholm

Frank Nelson of Stanco, New Jersey, will leave soon to attend the International Conference of Entomologists in Stockholm, Sweden.

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U. of Mass. Announces Service Training Course

A one-week in-service training course, conducted from Monday, September 13, 1948, through Friday, September 17, 1948, will be held at the University of Massachusetts, Amherst, Mass. for persons in the field of public health interested in environmental sanitation. The course is designed specifically as a practical refresher course for qualified public health personnel. Although this training program is intended for residents of Massachusetts, registration is not limited to this group.

The program is sponsored by the University Department of Bacteriology and Public Health, in cooperation with other University departments and federal and state agencies.

The program will be as follows:

Monday:

Milk Sanitation.
Chairman — Dr. H. D. Hankinson, Department of Dairy Industry, University of Massachusetts.

Tuesday:

A.M. Session: Industrial Sanitation.
Chairman — Mr. John B. Skinner, Director, Division of Occupational Hygiene, Department of Labor and Industries.
P.M. Session: Food Technology.
Chairman — Dr. Carl R. Fellers, Department of Food Technology, University of Massachusetts.

Wednesday:

Restaurant Sanitation.
Chairman — Mr. A. A. Robertson, State Department of Public Health.

Thursday:

Water and Sewage Sanitation.
Chairman — Mr. Arthur D. Weston, Director, Division of Sanitary Engineering, Massachusetts Department of Public Health.

Friday:

A.M. Session: Rodent Control.
Chairman — Carl B. Henry, Assistant District Agent, Fish and Wildlife Service, U. S. Department of the Interior.
P.M. Session: Insect Control.
Chairman—Dr. Harvey L. Sweetman, Department of Entomology, University of Massachusetts.

For application forms, apply to the Director of Short Courses; for details write to the Department of Bacteriology and Public Health, University of Massachusetts, Amherst.

NAIDM Meets at Spring Lake, N. J.; Oppose Change in Uniform State Bill

THE 34th annual meeting of the National Association of Insecticide and Disinfectant Manufacturers was held June 14-16 at the Monmouth Hotel, Spring Lake, N. J.

President Gordon M. Baird, Baird & McGuire, Inc. opened the first day's session by calling on a report from the Secretary, Dr. H. W. Hamilton of H. W. Hamilton Co., Inc. Dr. Hamilton reviewed the proposed changes in the uniform state insecticide, fungicide and rodenticide law, after which the association adopted the following resolution:

"Resolved that the National Association of Insecticide and Disinfectant Manufacturers confirm, ratify and adopt as the official act of this association the statement of its secretary before the uniform insecticide, fungicide and rodenticide bill committee of the Association of Economic Poisons Control Officials, at its meeting in Los Angeles on June 5, 1948, in opposition to any change in the uniform state insecticide, fungicide and rodenticide law. Further resolved that the NAIDM re-affirm its approval and adoption of the uniform state insecticide, fungicide and rodenticide bill as adopted and proposed by the council of state governments in 1946 and oppose any amendments thereto."

In his statement before the June 5th meeting, Dr. Hamilton pointed out that the uniform state bill was prepared by qualified men and is fair. He said its adoption came as a result of the willing cooperation of the economic poisons industry in the belief that would result in low cost administration. "The adoption of the amendments proposed would negative these assumptions and again place on this industry the obligation and burden of actively opposing the unreasonable costs and restrictions inherent in these legislative proposals," he stated before the committee.

Another part of his statement read, "This brings us to registration fees. When forty-eight states and three territories get laws of this type, all requiring registration fees, the annual cost per product (and clerical expenses of filing) is going to be large. Small companies will find it impossible to distribute nationally. Many states will find only a few products available because the volume in the state is low. Possibly, some of the best products will not be offered."

"Trends in Consumer Demand for Household Products in the Sanitary Field" was the title of the next talk given by E. G. Freedman, Bureau of Standards, R. H. Macy & Co., New York. Dr. Edward C. Bursk, Harvard Business Review, Harvard University, followed with an address on methods of marketing new sanitary chemicals or sanitary products.

Committee meetings were held Monday afternoon.

Tuesday, June 15th, lead off with talks by A. S. DuBois, Fuld Bros., Inc., and Dr. W. W. Peter, Chief Training Section, Institute of Inter-American Affairs, Division of Health and Sanitation Washington, D. C. on "Pine Oil in Scrub Soaps" and "Selling Cleanliness and Sanitation," respectively. W. G. Reed, chief of the insecticide division, livestock branch, Production and Marketing Administration, USDA, reviewed the progress made in getting the Federal insecticide, fungicide and rodenticide act into operation and stated that in most cases applications have been processed without difficulty. The color film, "Better Livestock" was shown through the courtesy of Ray L. Cuff, Regional Mgr., National Livestock Loss Prevention Board.

A report on the national Rat Control Program was given by Harold Noble, S. B. Penick & Co., Wednesday morning. Noble stated he believed more recognition should be given the competent pest control operators to poison, trap and gas rodents because rat control comes very near requiring scientific approach, guidance and direction. The government can set the

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pattern, and municipalities can help by cleaning up waste material and enforcing sanitation, but rat control calls for reliance on the professional PCO who should be paid for this work.

Dr. C. R. Twinn, Household and Medical Entomology Unit, Dept. of Agriculture, Ottawa, Canada gave a "Pictorial Presentation of Joint United States-Canadian Biting Fly Studies at Churchill."

A golf and rummy tournament provided the extra-curricular activities along with a cocktail party and concluding banquet with a floor show. Next NAIDM meeting this year will be held at the Commodore Hotel, New York, December 6-7.

Next Florida PC Exam Announced

Dr. John T. Creighton, chairman of the Florida Structural Pest Control Board announces that the next examination for certification under the Florida Structural Pest Control Law will be held at the Department of Entomology, College of Agriculture, University of Florida, Gainesville, November 10, 11 and 12. To qualify, applications must be filed with the Board at least 12 days prior to examination dates. Interested persons should write the Structural Pest Control Board, P. O. Box 2728, University Station, Gainesville and request application blanks.

American Processing Markets Odorid

Odorid, the deodorant working on the principle of surface absorption, is now being marketed by the American Processing Company, Hippodrome Building, Cleveland, Ohio. Odorid is an odorless powder which gives off no chemical substances and is nontoxic, noncaustic, noncorrosive and harmless to human beings, animals and birds, it is claimed. It may be used dry or mixed with water in restaurants, hospitals, manufacturing plants, theatres and other places where unpleasant odors are a problem.

American Processing is launching Odorid to the industrial and sanitation field with a national advertising and promotion campaign.

Carl Van Laaten Dies

Wyandotte Chemicals Corporation's western representative, Carl Van Laaten died recently in Mercy Hospital in Chicago. Mr. Van Laaten first entered the chemical industry with Edward Hill's Son & Co. in 1909. Later, in 1916, he helped from the Merchants Chemical Company, but most of his career was spent with Wyandotte Chemicals and its forerunner, Michigan Alkali Company. Mr. Van Laaten was fifty-eight.

30 Years for Becker With MM&R

Henry J. Becker has just completed his 30th year as sales representative for Magnus, Mabee & Reynard, Inc., New York and Chicago suppliers of Essential Oils, Flavoring and Perfuming Materials.

Dean of MM&R salesmen, Mr. Becker has covered Indiana, Southern Illinois, Western Kentucky and Southern Ohio since the close of the first World War.

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For many years, LARVACIDE has been winning friends among PCO'S . . . and making enemies of pests. With LARVACIDE, you have the penetrating power so necessary for clothes moth fumigation. On industrial jobs it controls flour moth, granary weevil, tobacco beetle and drug store beetle, including larvae and egglife. Unexcelled for rats. Brings them out of their hiding places to die WITHOUT carcass nuisance. Proven information on LARVACIDE and the MUL-T-VAPOR AEROSOL DEODORIZER on request.

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New Book Is Simple Insect Guide

THE INSECT GUIDE, ORDERS AND MAJOR FAMILIES OF NORTH AMERICAN INSECTS, *Ralph B. Swain with illustrations by Suzan N. Swain, pages i-xvli, 1-261, with 450 illustrations (330 in color), 1948. Doubleday and Company, Inc., New York. Price $3.00.*

Reviewed by

S. A. Rohwer

U. S. Department of Agriculture

Getting acquainted with insects, is no simple task. Heretofore most of the guides have required or presupposed considerable technical knowledge. The little book just published for the Swain's under the title "The Insect Guide" by Doubleday and Company uses a different approach. The key to it is its illustrations—more than 450 of which some 330 are in color. From these reference is made to the text by use of numbers. In the text the insect and its relatives are discussed in non-technical terms. Information on the appearance, habits of the adult and young (immature stages) is briefly stated together with a concise summary on the importance of the group.

The aims and purpose of the book are to provide simple, ready means of becoming acquainted with the major groups of insects. This it does in an interesting, pleasing and direct style. The book does not seek to discuss and characterize individual species. It does, however, include considerable significant information on many of the better known pests. It points out that the native home of the American cockroach is tropical West Africa; that the annual injury caused by common termites is estimated at $40,000,000; that silverfish injure books, wallpaper, fabrics and like materials associated with glues and starch; that ants are herbivorous, carnivorous or omnivorous dominant insects, in point of numbers and individuals, and are important pests in homes, gardens and fields — to mention only a few of numerous statements on well known kinds of insects.

The illustrations are excellent. The text is well done, interesting and free from complicated expressions and technical phraseology. The authors and publisher have provided a text which does much to enable the lay and technical reader to recognize and evaluate friends and enemies of the insect world. They are to be congratulated. Pest control operators should welcome their efforts, as this simple, well organized handbook will provide a means by which acquaintance with insects may easily be attained.

Chapman Moves to Memphis

The Chapman Chemical Company have opened new general offices in the Dermon Building, Memphis 3, Tennessee. Administrative and research activities formerly handled from Chicago and New Orleans will now be consolidated in Memphis where Chapman has had its plant for many years. President A. Dale Chapman stated, "By having our operations centralized in one city we can render quicker and more efficient service."

Sales offices in Chicago and New Orleans will be maintained as will those offices in many other cities. Distributors of wood preservative chemicals, Chapman also operates a number of test plots throughout the country. This year, pentachlorophenol, which is sold by Chapman, was adopted as a tentative standard of the American Wood-Preservers' Association.

Knipling Receives Medal of Merit

"For exceptionally meritorious conduct in the performing of outstanding service to the United States," Dr. Edward F. Knipling, as Director of the Orlando station of the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture during the war period, was awarded the Medal of Merit recently, by the Department of National Defense. The citation, signed by President Harry S. Truman, which accompanied the award stated that Dr. Knipling "planned and directed investigations for the development of insecticides and repellents for the prevention of insect-borne diseases in the United States Army. As a result of these studies the Armed Forces adopted the use of DDT for the control of insect-borne diseases and new uses and equipment were developed for the dispersing of insecticides by new methods, including the airplane spraying of infested areas. All these research contributions were of inestimable value to the health of morale of United States troops, as well as to the Nation as a whole."

The Medal of Merit, awarded only to civilians, and the Legion of Merit, awarded to military personnel, were authorized to Public Law 671, 77th Congress, approved July 20, 1942, for the purpose of rewarding outstanding and meritorious conduct in the performance of duties in furtherance of the war efforts of the United Nations. The award stems from the Badge for Military Merit, America's oldest decoration, established by George Washington in 1782.

ORGANIZATION NEWS...

Mo. PCA Talk Carpet Beetles, Moths, Termites

President Thomas C. Raley called the second 1948 quarterly meeting of the Missouri Pest Control Association to order at the early hour of 9:30 a.m. in the Daniel Boone Hotel at Columbia, Mo. on Saturday, May 15th.

Ira Hatfield of Planetary Chemical Company lead an informative discussion on moths and carpet beetles. James Hunt then followed with a report on the latest findings of the USPHS on laboratory tests made on aluminum as a substitute for galvanized iron for cuffs, channels and flashing on doors. Findings are that under certain conditions rats cut through 24 gauge aluminum. However it was reported that there have been no break-throughs in Kansas City where considerable aluminum has been used. Hunt displayed an interesting set of photographs showing victims of rat bites and stated that new studies are being made by the department on Red Squill, repellents and attractives for rats.

Ira Hatfield lead the afternoon session with a short talk on termites. This was followed by an open forum illustrated with blackboard sketches.

A business meeting opened the day's activities and the following members answered the roll:

L. D. Landry
G. L. Clem
A. J. Danella
W. F. Exner
H. J. Hall
V. O. Hawks
O. J. Lawson
J. C. Logan
Chas. Maly
J. O. Millspaugh
Arthur Ochs
Roy Mason
Thos. C. Raley
Miss Lee A. Sain
Reynold Shuyler
Steve Spiegelhalter
O. M. Weigle
W. H. Hoffman
Ira Hatfield

Hawaiian PCA Elects

At the last meeting of the Hawaiian Pest Control Association, held in Honolulu, an election of officers was held. Results were as follows:

E. L. Forde — President
G. M. Naquette — Vice President
Sung Hing Au — Secretary-Treasurer.
Hasegawa, Komoda, Murakami, Furuya and Luke — Directors

Dr. Miller Leads Rat Talks at Eartern Pennsylvania PCA Meeting

Dr. Betty McDonald Miller of the University of Michigan was keynote speaker at the June 10th meeting of the Eastern Pennsylvania Pest Control Association held at the Robert Morris Hotel, Philadelphia. Dr. Miller is temporarily loaned to the U. S. Department of Interior to help in the National Rodent Control Campaign. She spoke on how the pest control industry could aid materially in Philadelphia's part in this national rat program. She said PCOs must educate people through radio programs, department store announcements, newspapers, magazines and folders for pay envelopes, folders which could be given to school children. Dr. Miller reported Philadelphia is the largest city in the country which has already formed a citizens committee to carry out the work of the NRCP. She closed her discussion by playing a recording entitled, "Living - 1948," which vividly portrayed the vast waste of food and money caused by rats.

Charles Cushing reported on the formation of the new citizens committee and said PCOs will be asked to furnish speakers for clubs, schools, etc., and to contribute funds for the execution of the campaign.

W. W. Dykstra of the U.S. Department of the Interior then expressed the opinion that PCOs should not only think of exterminating rats as the only control method, but instead should get at the source of eliminating unsanitary conditions.

The pest control industry should support the NRCP without thought or hope of boosting business for itself, but should rather unselfishly serve the public in this important drive. These were the sentiments expressed by William O. Buettner, secretary NPCA, who also stated he felt the industry had not been on its toes in the past for when the federal government began its Rodent Control program, the pest control industry was not even mentioned.

"What can we do to help?" was the question asked by Chairman A. E. Ritt. Dykstra suggested the following in answer:

(1) PCOs should go ahead with a demonstration area-example.
  (a) Take one or two city blocks.
  (b) Make survey with health inspectors.
  (c) If poisoning or trapping is necessary, volunteer to do this work.
(2) Acquaint local clubs, organizations, churches, etc. with the RCP. Offer to write articles for, or give talks to these groups.
(3) A float or truck should be sponsored by the PCO industry as a whole.
(4) Obtain flims and records to show and play at public gatherings.
(5) Have someone dress up as a rat to parade city streets and attract people's attention.

This open portion of the meeting was then closed for a business session in which new members, Robert and John Diehl of Scientific Pest Control, were accepted into the Association. Williamsport, Pa., was set as the site for

(Continued on page 46)

E. Pa. Lady Bugs Meet

The Eastern Pennsylvania Lady Bugs held a meeting and election of officers following a dinner of the Eastern Pennsylvania Pest Control Association at the Robert Morris Hotel, Philadelphia on June 10th. The Lady Bugs present, were:

Helen McCullough
Ruth Bauer
Milicent Rodman
Norma Meyer
Betty Sharp
Mary Hynak
Alice McWilliams
Betty Kopf
Marie Abendroth

and Dr. Betty Miller of the University of Michigan who is travelling around the United States in the interests of the Government rat control program.

Marie Abendroth is secretary of this Lady Bugs group.

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Quick Health, with 10% Red Squill
Rat Jinx, with 2% Antu
Used by PCOs from Coast to Coast for Many years!!

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Automatically machine paper wrapped rat baits that are easy to use, convenient to handle. Approximately 80 baits to a metal top and bottom fibre can, just right for the average householder to use.

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GREATER *Kills*
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Rodent Seed, Ant Jelly, Arsenic, Carbolic, Pyrethrum, Cresylic, Red Squill, Derris Powder, and other effective chemicals that do a thorough job for the Pest Controller. The quality of CERTOX products remains unaffected by the national emergency. Prices, too, are near normal.

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All CERTOX products are manufactured according to exacting specifications under personal supervision of I. H. LUTTAN, B. S. A., Entomologist.

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Available to Cover your Annual Needs.

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Suppliers of Complete Exterminating Chemicals.

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Chlordane, oil concentrate, liquid emulsifiable concentrate, wettable powder concentrate, and ready-to-use liquids and powders.

Super Fluorex V, powerful insecticide powder

Sodium Fluoride

Poison Seeds

Pyrethrum and **DDT,** powders and liquids

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Antu and **Antu Tracking Powder**
Thallium Sulphate
Prepared Rat Baits — ready to use, different flavors, Red Squill, Thallium or Antu.

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Orthodichlorobenzene, Creosote Oil, Sodium Arsenite Powder, Pentachlorophenol Concentrate

Write for particulars and prices

AMERICAN FLUORIDE CORPORATION

151 WEST 19TH STREET NEW YORK 11, N. Y.

Dr. Miller Speaks to E. Pa. PCA

(from page 34)

the next meeting in September and it was suggested that PCOs in the Pittsburgh area be invited to attend. Announcements of the exact time and place of this fall meeting are to be sent out later.

President D. L. McCullough stated he believed it was well worth while for PCOs to make the Rat Control Program a success and suggested that influential people in various localities might be recruited to help in the program.

Bill Buettner read from a Food & Drug Acts Department letter emphasizing cautions in the use of 1080. He also reported a new rodent control procedure would be demonstrated in New York city in the near future. Date will be announced.

Thirty-five members and guests attended this E. Pa. PC meeting which opened with a delicious roast beef dinner. In addition to the guests mentioned above, Ernest Mills, of the U. S. Dept. of Interior and Herbert Packer, Jr., of the Philadelphia Health Department were also present.

Iowa PCA Holds Conference

On Saturday, June 5th, the Iowa Pest Control Control Association in conjunction with Iowa State College, Iowa Department of Health and the Iowa Department of Agriculture held a pest control conference in the Memorial Union of Iowa State College, Ames, Iowa.

Joe A. Robar acted as chairman for the program which opened with a discussion of the 1948 Iowa fly control campaign by Harold Gunderson. E. S. Raun then followed with a report on the formulations of DDT, their effect on surfaces and length of residual action. Vern Walls concluded the morning session with a discussion entitled, "How the Pest Control Operator Fits Into Community Fly Control."

"Termites in Iowa" was the subject first discussed in the afternoon and H. M. Harris took the platform for this topic. A business meeting followed in which the membership adopted a standard procedure for city-wide fly treating campaigns in the state of Iowa. The day's activities closed with a demonstration by Francis Plumb and Vic Darling, Harlan, Iowa of the Todd Insecticidal Fog Applicator.

Next meeting will be held in Des Moines early in September. Topics for this meeting will be termite and rat control with an on-the-job treating program to be arranged for both subjects.

Canadian PCOs Back Jaycees In "War on Pests" Campaign

At the May 3rd meeting of the Canadian Pest Control Operators Association held in the Board Room of the Science Service, Plant Protection Division of the Dominion Department of Agriculture, Montreal, N. Bakes, National Secretary of the Canadian Junior Chamber of Commerce acted as chairman.

In view of the fact that the Jaycees in the USA are carrying on similar pest drives, the possibility of running such a campaign in Canada was studied by the Junior Chamber and discussed with members of industry and the Government. Immediate interest was shown and a Jaycee Steering Committee was formed to explore the possibility of a "War on Pests" campaign. Stevenson Scott Advertising Agency was called in to make suggestions for a carefully planned publicity effort. A considerably amount of sample material for use in advertising copy, newspaper stories, radio spots, etc. was gathered by a technical subcommittee. Suggestions were also made for methods of using the cooperation of all Dominion and Provincial Government authorities, 4-H Clubs and other national bodies that might be interested.

This background of the work the Canadian Jaycees were presented at the PCO Montreal meeting and general assent was given. A Ways and Means Committee was appointed to handle the raising of funds to carry out this program. The contemplated budget to handle this program was set at $12,000.00 which would assure the Junior Chamber of full support to make the campaign a success. It was decided a letter would be sent to all interested companies with a request for financial support of the Jaycee "War on Pests." Members of the Ways and Means Committee are:

Chairman — W. MacLean (Naugatuck)
Secretary-Treasurer—F. F. Lowe (C.I.L.)
Junior Chamber of Commerce Member — K. Clarke
Department of Agriculture Member — H. Munro
Department of Health and Welfare Members — To be decided later
Pest Control Operators Members — Professor E. R. Bellemare
Industry Members—J. W. Kennedy (Sapho), W. Tawse (Green Cross), R. H. Smith (Rawleigh)

Activation of this "War on Pests" campaign is the culmination of the desires of many members who hoped some cooperative plan of advertising could be arranged which would help create new business for PCOs by arousing public interest. A committee was appointed in 1946 to study this subject, but it found that such a program was financially beyond the means of the Association. The launching of the Jaycee campaign proved to be a "natural" to accomplish the mission originally set.

Directors of the Canadian PC OA are asking Canadian PCOs to send in contributions ranging from $10 to $100 in support of this combined-effort campaign to: Mr. F. F. Lowe, Secretary-Treasurer, "War on Pests" Campaign, Room 1620, University Tower Building, 660 West, St. Catherine Street, Montreal, Quebec.

Present at the May 3rd meeting were:

Dominion Dept. of Health and Welfare — J. M. St. Onge, A Papineau-Couture, Paul E. Jean.
Dominion Department of Agriculture — H. Munro, A. W. Carter, K. Thomas, C. Jefferson.
Kennedy Manufacturing Company — W. A. Kennedy, J. W. Kennedy.
Canadian Pest Control Operators Ass'n. — J. Rudick.
Professor University of Montreal — E. R. Bellemare.
Sherwin-Williams Company of Canada Ltd. A. H. Carter.
Green Cross Insecticides — N. MacLeod, W. J. Tawse.
W. J. Michaud Co. Ltd. — R. C. Gardner.
W. J. Rawleigh Company — R. G. Shampagne.
Canadian Industries Limited — D. S. Hart, F. F. Lowe.
Junior Chamber of Commerce — K. Clarke.
Naugatuck Chemicals Division of Dominion Rubber Co. Ltd. — M. F. Anderson, W. MacLean.
Niagara Spray Brand Co. — G. Blair, L. Laporte.
Monsanto (Canada) Limited — S. R. Annet.
National Secretary, Junior Chamber of Commerce — N. Bakes.
Stevenson Scott Advertising Agency — H. Smith.

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pest control and sanitation service industry

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READ EVERY MONTH By the country's leading

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- FUMIGATORS
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The Most Direct and Economical Way

TO COVER THE PEST CONTROL FIELD

PESTS and Their Control

A MONTHLY TRADE MAGAZINE

1900 Euclid Building, Cleveland 15, Ohio

COOPERATING WITH THE NATIONAL PEST CONTROL ASSOCIATION

The Role of PCOs

(from page 34)

JOB of insect pest and rodent control?

A letter from Professor J. J. Davis said "I hope you will emphasize the fact that pest control, whether rat or otherwise, is not a routine procedure, but demands the services of one qualified, and that at least 70% of pest control is "know how."

1. We have the "know how."
2. We have the equipment and manpower to do the job.
3. The work requires continuing effort, NOT sporadic "Campaigns" (by payrollers in election years) in competition with private enterprise.
4. We think that a home owner or an apartment owner or a food merchant should call an exterminator and NOT his alderman when he has a rodent infestation.
5. *We think that private enterprise should be given the job NOT "the works."*

Now how do those statements fit into the spirit of cooperation with our Health Department?

We want to cooperate. We can and will work together with a government agency that bases its work on (1) education, (2) inspection, (3) enforcement. We did our best to prove that when we appeared at committee hearings of our Chicago city council and worked to eliminate the "rat catchers" from the city payroll and substitute an appropriation for inspection and enforcement officers so badly needed by the Health Department.

The present city rat campaign methods have been described by the representatives of the U. S. Public Health Service as ineffective. Fish and Wildlife Service representatives said it was "pouring money down a rat hole." Our Association has protested against it since the W.P.A. days.

Now we hope that this fine gesture of our health authorities in sponsoring this two day school is a step toward mutual recognition of the proper functions of government and business and that we have a *definite workable plan to present* that is based on successful experience.

Pyrenones in Roach Control

(from page 11)

unpainted, no roaches were observed and the painters had seen none. Area 4 was treated on November 14, 1947, and on January 21, 1948, it was retreated. During retreatment a very moderate infestation was flushed from a sink similar to that described above. In the rest of the area, 3 live roaches were observed. For the record, it should be noted that scrubbing and washing with strong soap solutions took place at least 3 times daily at these wood sink areas. Area 5 was treated on December 8, 1947. This treatment proved to be effective to the satisfaction of all concerned until after February 15, 1948. Areas 1, 2, and 5 were comparable for concentrations of sprays applied and for the length of residual action against German roaches. It is interesting and important to note that Area 5 received less than one-half of the volume of spray given to Areas 1 and 2.

Two years previous to the above spray tests, the same areas were treated with Dust A and again with Dust B. The over-all results were comparable to those obetained with sprays. The procedures used were those that are now considered standard for a general clean-up of roaches with dust treatments. Every crack and crevice received a liberal application of the insecticide. In each instance, wide bands of the dust were permitted to remain where treated areas bordered the untreated ones. From the standpoint of cost, however, there is an interesting comparison given in the table below.

Area No.	Pounds of Dust A used	Man-hours required for application	Amount of spray used (quarts,	Time to mix and apply (minutes)
1	17	9	15	40
2	10	7	11	40
3	12	9	12	40
4	12	9	15	45
5	20	15	18	45

Also from the series of treatments made with Dust A and B, it seems safe to say that one can anticipate longer residual value from the higher concentrations of active ingredients.

5. In practice, a general clean-up of roaches falls into three natural procedures:

(a) Making the premises ready for application, by removing food, utensils, and other materials from storage areas, or covering them.

(b) The application of the insecticide.

(c) Cleaning up dead insects, returning articles to their proper places and removing any covering used over foods or utensils.

When emulsifiable Pyrenones are used, there is under (a) a minimum of covering to do. Under (b) safety equipment for the operator is not necessary. No gloves, masks, and goggles are needed. No time is required for putting on or removing these pieces of harness. In this connection, we have had no cases of dermatosis; no compensation and no liability claims resulted from the use of these materials. Under (c), the dead insects need to be removed and the goods need to be replaced or uncovered. Since the insects die promptly due to the rapid action of Pyrenones, it is not necessary to continue to pick up dead insects.

6. The low toxicity factor of Pyrenones in water emulsions enables the operator to treat larger areas in less time. In many instances the total time required will be less because of this factor.

Spray applications incidentally obtain control for many of the so-called pantry pests which frequently infest shelves and other food storage places.

The information contained in this article on our uses of some of the Pyrenones is offered because it may help some members of our industry. It is given only in that spirit. We would not presume to try to tell anyone how to run his business nor what chemicals to use. After considering all factors relating to pest control work, our opinion of the Pyrenones at this writing is perhaps better expressed by Don Marquis in "archy interviews a pharaoh":

"my little pest
says he
you must be respectful
in the presence
of a mighty desolation."

Kennadrills
Drill Masonry *Fast!*
Save Money

"98 holes in cement, 3½ inches deep. 2 hours, 5 minutes."

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"7½ hours of drilling time saved in one day."

Pest control operators get speeds and savings with the Kennadrill because it drills up to 10 times as fast as conventional bits and it stays sharp up to 100 times longer. The Kennametal edge of Kennadrills has diamond-like hardness and it resists wear, shock, and abrasion. Turbine action ejects the cuttings and keeps the bit from binding or stalling. Bit sizes are ¼" to 1½" and TILE, BRICK, CEMENT, STONE, WALL BOARD, PLASTER, etc., can be drilled with light hand held rotary drills.

Write for bulletin PCK now.

KENNAMETAL *Inc.*, LATROBE, PA.

Favorite ANTICIDE for PCOs
FROM MAINE TO CALIFORNIA
and in Many Foreign Lands

ANT-X
JELLY BAIT
(Thallium)

- Same Pre-war Quality
- Same Pre-war Prices

Sprays and powders kill a few ants, but for real "kill" and consistent results, there is no substitute for ANT-X JELLY BAIT.

LARGE FREE SAMPLE
If you are not already familiar with ANT-X JELLY BAIT, made by a manufacturer with "know how" gained from nearly twenty years experience in the pest control field, write today for a BIG FREE TUBE of ANT-X JELLY BAIT, descriptive folder and 1948 catalog of other time-tested NOTT Products.

ANT-X JELLY BAIT and **ANT-X ANT TRAPS** are again available under **your private trademark.** Full details on request.

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Capacity 4 oz.
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$ 3.80 per Doz.
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make BETTER *insecticides*

PYRENONE-TYPE INSECTICIDES, of the type recently publicized for the *safe* protection of grain cereal products, are available to PCO's from a rapidly increasing number of manufacturers. Use them in storage warehouses . . . in wholesale grocery warehouses . . . in storerooms of retail groceries . . . in delicatessen stores . . . wherever safety is a primary factor.

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When answering ads where box number only is given, please address as follows: Box number, c/o Pests and Their Control, 1900 Euclid Building, Cleveland 15, Ohio.

Rates: "Position Wanted" 5c per word, minimum, $1.00. All other classifications, 10c per word, minimum $2.00. All classified ads must be received by Publisher at least two weeks preceding publication date and be accompanied by cash or money order covering full payment.

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Exterminating business in central United States. Very large and rich territory. County seat of about 12,000. No competition. Unlimited opportunity. Business nets $6,000 to $8,000 yearly. Can be increased. Price $6,500. Write:
Box 202 Pests and Their Control

WANTED TO BUY

Established pest control business or will invest capital and service in same. Write complete details in confidence.
Box 203 Pests and Their Control

FOR SALE

Well established business. Employ 7 men at present. Can double business yearly if desired. Plenty termite control and construction, plenty monthly insect-rodent control contracts. Trucks, pressure equipment, office equipment, and construction equipment included. Good supply in all chemicals. Price $30,000.00. Write:
Box 204 Pests and Their Control

WANTED

Urgently need one or more copies of "Handbook on Pest Control" by Arnold Mallis. Do you have a copy you no longer need? Will pay $3.00 per book. Write,
Box 205 Pests and Their Control

FOR SALE

500 latest model pistol grip Cornelius Sprayers, $1.95 each. Whole or part — first come, first served. Write Pest Control Products Co., 210 North Western Ave., Los Angeles 4, Cal.

Quirk Rat Baits

Robert Quirk, manager of Ohio Products Company, North Madison, Ohio, announces that Quirk's Quick Death with Red Squill and Quirk's Rat Jinx with Antu are now available to PCOs under their own label. These paper wrapped rat baits have been sold to PCOs for more than ten years under the Quirk brand name, but realizing many operators handle packaged goods under their own trademark, Ohio Products had decided to label these baits as ordered.

Plans are now materializing to double the manufacturing area of this firm which has been specializing in rodent control products since 1936. Increased sales is given as the chief reason for this expansion.

New Peterman Booklet

William Peterman, Inc. has just published a Professional Line folder entitled, "Quality Insecticides for Quantity Users." Besides briefly describing Peterman Pro-Kill Powder, Pro-Kill Powder Gun, Emulsifiable Pro-Toxide Concentrate, Oil Base Pro-Toxide Concentrate and Oil Base Pro-Chlor Concentrate prices for each is included so that these products can be ordered by direct mail. A copy of this booklet may be obtained by writing the company at 411 Wilson Ave., Newark 5, N. J.

Hans Stauffer Named to Board

Hans Stauffer, of the Stauffer Chemical Company, New York has been elected to the board of directors of the Armed Forces Chemical Association at a recent association meeting held in Washington.

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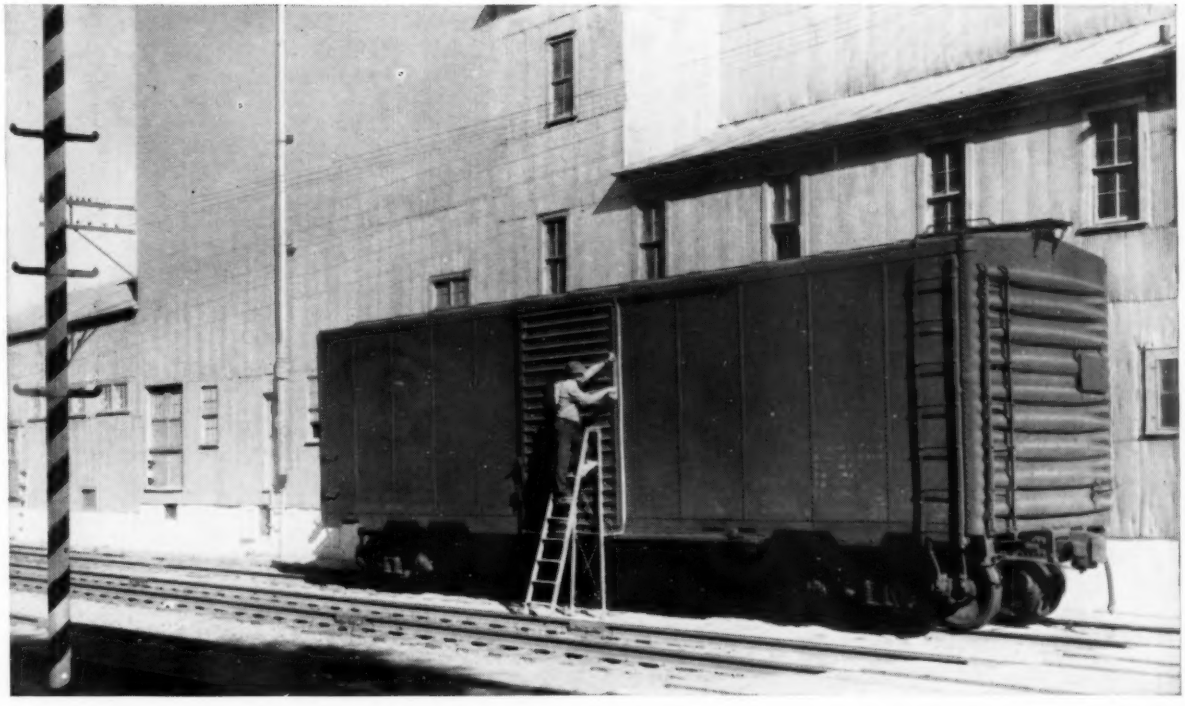

As one of your special services you will find Dow Methyl Bromide effective and profitable in the fumigation of loaded boxcars. Methyl Bromide quickly and thoroughly fumigates cereals and bagged grains or flour, packaged food products and other edibles right in the railroad cars in which they are shipped. Harmless to most food products when properly applied, its unexcelled penetrating power accomplishes an excellent kill of insects in all stages of development from egg to adult. Aeration is rapid, and cars may be unloaded within a short time after the completion of the exposure period.

You need no complicated equipment. Methyl Bromide is always applied from *outside* the railroad car by means of a copper or Dow Saran plastic tube attached to a Jiffy can puncturer or a Methyl Bromide cylinder. The tube is inserted through a hole drilled in the floor of the car or through some other convenient opening. The car must be thoroughly checked for leakage points and all such points sealed with masking tape, calking compound, or strips of greased paper.

Write our Fumigant Division for full information as to quantities of Methyl Bromide required for fumigation of both steel and wood cars, length of exposure, aeration periods and other helpful data.

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Now you can get tailor-made chlordane formulations designed to fit any PCO's needs.

COOK'S All-Purpose PCO Concentrate

Fly-proof and roach-proof in one application, using Cook's All-Purpose PCO Concentrate containing "refined" Chlordane plus "activating" Extane. Mix 1 part Concentrate with 7 parts WATER or SOLVENT.

4/1 gals. to cs.	$6.50 per gal.
5-gal. cans	6.25 per gal.
50-gal. drums	5.95 per gal.

COOK'S 20% Refined Chlordane Concentrate

This is 20% by weight. To be diluted 9:1 with deodorized petroleum solvent.

4/1 gals. to cs.	$4.50 per gal.
5-gal. cans	4.25 per gal.
50-gal. drums	3.95 per gal.

COOK'S Chlordane Emulsion Concentrate

To mix with water. For industrial and vegetation use. Kills roaches, waterbugs, grasshoppers, mites, chiggers, red bugs, and certain other insects. CONTAINS 4 lbs. of AGRICULTURAL CHLORDANE PER GAL.

12/1 qts. to cs.	$32.00 per cs.
4/1 gal. to cs.	10.00 per gal.
5-gal. cans	9.75 per gal.
50-gal. drums	9.50 per gal.

2% Refined Chlordane Spray

Ready to use in stainless, deodorized petroleum solvent.

5-gal can	$1.10 per gal.
50-gal. drum	.95 per gal.

Technical Chlordane Agricultural Grade

700-lb. drum	$1.70 per lb.
5-gal. (65 lbs. net wt.)	$2.00 per lb.

Technical Chlordane Refined Grade

Drum (700 lb. net)	$1.85 lb.
5-gal. (65 lb. net)	2.25 lb.
1½-gal. (20 lb. net)	2.50 lb.

(Ready-To-Use) 5% Chlordane Dust

25-lb. bag	$0.19 per lb.
100-lb. drum	0.16 per lb.

50% Chlordane Wettable Powder

6/4 lb bags to case	$1.19 per lb.
100-lb. drum	1.17 per lb.

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*Extane: A secret activator exclusive with COOK-KILL. Non-toxic to humans. Safe. Yet makes miracle COOK-KILL kill hardest-to-kill Roaches in ⅓ time of Chlordane.

	YOUR COST	SUGGESTED RETAIL
Pts.	$5.60 (case of 12)	69c pt.
Qts.	9.60 (case of 12)	$1.19 qt.
Gal.	8.10 (case of 4)	$2.95 gal.
5-gal. can	$9.00	$2.60 gal.
50-gal. drum	$87.50	$2.40 gal.

COOK CHEMICAL COMPANY

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